COAL AGE

The Weekly Journal of the Coal and Coke Industries

Volume 18 NEW YORK, THURSDAY, SEPT. 23, 1920 Number 13

Makers of Civilization

HEREWITH is the announcement of the first meeting of the American Engineering Council of the Federated American Engineering Societies, where will gather together the builders of civilization. Lawyers may rule what is built, doctors may heal the builders, bankers may trade in the works when built, farmers may feed the workers, but the real makers of the material foundations of civilization are the engineers and those who work under their direction.

Look where you will you see the work of engineers, either what they have actually made or what has been performed by the instrumentalities their work has created. Others may adorn and beautify life, but the engineer lays the material basis on which the others work. So it is no small matter when these mastermen form a society of societies—an all-embracing association of engineers—to typify that this age is neither of stone, nor brass, nor iron, nor coal, nor electricity but of engineers and their handiwork. What is wrought is wrought by and through them. They feel strongly that this has not been known in the past. When, for instance, a coal company was formed, a lawyer or banker was elected president. "We can hire our engineers," was the comment. The profession has hardly risen above the employee stage. An age-long sense that engineers were not executive timber has kept them from coming to the fore. Men with meretricious qualities have taken precedence. Lawyers, bankers, teachers fill governmental commissions and call on engineers for advice but not leadership.

The emancipation of the engineer—the right to be what he really is, subject neither to his own fears nor to the doubts of others, the right to lead if he can lead and the duty to consent to be led if the stuff of leadership is not in and of him—is a leading aim of the new organization. How better can he show himself of executive quality than by joining himself in counsel with those of his profession in a group large enough to impress the world and powerful enough to serve the interest of the public effectually? There is a balance of judgment in the engineer of which the world stands in need. His is a mind that weighs. Herbert C. Hoover has said that it is a quantitative mind. It thinks in figures. It is solidly grounded in research. Unlike the mirage-forming vision of the qualitative genius, it cannot fill thirty-six inches of linear space with anything less than a full yard of material. No one can deny that the faculty for performance is greater than oratory, yet why is it that the engineer is passed up perpetually for a man whose ability consists in being able merely to talk of doing without ability to see the work through? Civilization is held back because those who know the way to build are restrained by men who, not knowing, must always be assured by precedent. The last word in the erection of any structure is not the word of the man who understands how to build it but of some man who has the vaguest idea of how the work will be acomplished and what, when finished, it will resemble.

The large societies of engineers are already members of the Engineering Council of the Federated American Engineering Societies. The smaller societies the country over are coming into the larger body. The new federation is in no way exclusive. It will be ruled from below not bossed from above. The larger societies have started it but they are controlled by their members. The local societies are joining the Council and their vote will be similarly democratic.

The purpose of the new amalgamation will be to convince the world that the men who are planning and creating the equipment on which all our necessaries and comforts depend are worthy of a leading place in public life and private industry and can only secure it by showing themselves in public and letting the world see what resources are behind them.

Those who believe that the engineer is the great constructive force of the twentieth century should support this new movement, which promises by service to the

First Meeting of the American Engineering Council of the Federated American Engineering Societies

New Willard Hotel

Washington, D. C., Nov. 18 and 19, 1920

Thursday, November 18

8:30 A.M.

Registration.

10 A.M.

Call to order. R. L. Humphrey, chairman.

Election of Temporary Chairman and Secretary.

Appointment of Temporary Committee on Progress, Credentials,, Constitution and Bylaws, Nominations, Plan and Scope, Budget and Resolutions.

2 P.M.

Address: J. Park Channing, A. I. M. E.

2:30 P.M.

Discussion of Field of Activity of the Federated American Engineering Societies.

Friday, November 19

9 A.M.

Report of Nominations.
Report of Permanent Officers.
Report of Constitution and Bylaws.
Ratification of Constitution and Bylaws.
Report on Plan and Scope.

2 P.M.

Report on Budget.
Report on Resolutions.

8:30 P.M.

Address of President.
Address: Herbert C. Hoover, A. I. M. E.

9:30 P.M.

Informal Reception and Smoker.

country and the community to raise the standards of the profession and by securing public recognition to place the engineer in the position his talents should assure to him.

Rubber Belts About Mines

INEXPLICABLE are the preferences of engineers. Around metal mines the rubber belt is found everywhere solving transportation problems and doing it successfully. So also in British coal mines, but not in American. Just lately there have been indications that the rubber belt is coming into American coal preparators, where it will perform as useful a service as it does in metal-mine concentrating plants. Certainly coal will not wear out a belt as rapidly as will hard and heavy minerals.

Among the interesting uses may be mentioned the belts at the washery of the United States Fuel Co. at Middle Fork, Benton, Ill., where one belt is seventy-two inches wide. Another is a belt which handles the whole tonnage of the Aluminum Coal Co. at Renoulf's Beach, near Pittsburgh, transferring the coal from a dump inside the mine to a point on the tipple. Another belt runs out on a loading boom over the river.

Yet another instance is a belt at the Alliance Coal Mining Co.'s breaker in the anthracite region. The pockets at the plant are set at right angles to the railroad, and the coal is taken to the cars by a belt conveyor. A belt at the Culbertson strip-pit operation connecting the tipple shed with the preparator illustrates yet another of these uses. It is mentioned in an article contained in this issue.

Great Britain is using many rubber and ballata belts at the coal face to deliver coal to the mine cars. They have been adopted for that purpose here, but face conveyors are rare in America, and accordingly this use is one of less importance.

Demand That Never Fails

SIR HENRY MORRIS, the economist, says that 52,116 more persons were employed in the coal-mining industry in 1919 than in 1913, and that with much more pay and fewer hours (which conditions are said to mean increased production) they raised 58,026,456 fewer tons of coal in 1919 than were raised in 1913.

In Great Britain a pernicious doctrine has pervaded all orders of society proclaiming that each individual has a limited ability and desire to consume, that the salable output is just so much per person, no more no less. Given a fixed demand for so many shoes, coats, shirts, houses, food and fuel there is a menace to the individual if more than will fill that fixed demand is produced, for as soon as there is overproduction there will be idle men and bread lines and big reductions in wages. The more able will be retained, and the less able will drift around unable to get work, and all will get smaller wages.

All thinking men know that the fixed demand is inconceivable. Demand responds rapidly to fit production so long as the public is assured of the continuance of values. We have had a remarkable evidence of that fact. The end of the war checked enterprise. Business waited for lower prices. Expenditures were delayed by the wealthy because they expected to buy more cheaply and to hire labor for less wages. The workingmen did not buy because irregular work made them afraid and disposed to husband their resources.

Once the rich men were assured of the stability of values they entered the market. As soon as the workingman was assured of work he became a spender. His Liberty Bonds were sold, and he bought everything his heart desired. Thus a hesitating, feeble consumption became bold and reckless. Never was there greater demand. The consumption was prodigious. It was not the outcome so much of need as of desire, for during the six months after the armistice which ended a war, in which frugality and delayed spending had created many extraordinary shortages, there was a greater need for many commodities than in the year that followed. The halt in consumption was the outcome of a fixed determination to exercise economy during a period expected to be one of lowering prices and already one of irregular work.

As soon as confidence came, buying became rampant. It made up not for delayed purchases but went far beyond—a riotous purchasing of silk shirts and hosiery, of furs and follies, of riding in pullmans, of travel for pleasure and of expenditure in sumptuous living. The public which had been saving was spending. Who shall say that demand did not rise with opportunity? It always has and always will.

Consequently, while the dividend in the national division is by no means fixed, the divisor—namely, the number of participants—is unvarying except as population grows. Hence the quotient varies. The demand per inhabitant, in short, changes. There need be no fear that we will ever produce more than we can consume.

The British miner, in particular, has no reason to shirk because of an alleged inadequacy of demand. He is entirely failing to supply the needs of the market. By his selfish abstention from energetic toil he is laying idle fellow workers the world over. Even in times of hesitation, when buying falters from lack of confidence and when summer months retard consumption, the British miner is protected and works steadily. He has no longer reason to put on his brakes; but the habit once formed grows. What is today a reasoned, even if a badly reasoned, practice is tomorrow a habit, a rut out of which the wagon of progress cannot budge.

The British workman, with every evidence of the falsity of his argument that great industrial effort ends in idle men, believes the less he does the better it will be for himself and his fellows. He endeavors to lower production and his unions protect him. In doing so today the miner has a minimum wage that insures him in case he decides that he does not want to work hard enough to exceed that meager earning. He can say he has an "abnormal place" and receive his generous minimum wage for a minimum of work.

Fortunately, especially where poor work earns discharge, most workmen in America will work and not loaf. Judge E. H. Gary, chairman of the United States Steel Corporation, is reported to have said, "I have, upon inquiry, during the last thirty or forty days ascertained that labor at our various plants is more efficient per man than it has been at any time during the last five years." These men realize that trifling at their work means discharge and consequently they give full measure, and as a result of that labor they and their fellows in industry get the benefit. More product means more demand; and more demand, a larger competency. What one makes another uses, and if it is not made how then can it be available for his use?

John Markle Injured in New York Bomb Explosion

One of those who entered the doors of J. P. Morgan & Co. just a few minutes before the bomb explosion Sept. 16 was **John Markle**, the largest independent anthracite coal operator in this country. Mr. Markle came from the mines in Pennsylvania on Wednesday on his way to his summer home on the North Shore of Long Island. He had business relations with the firm. Mr. Markle was accompanied by A. B. Jessup, a mining engineer and general manager of the mines. Both were injured by flying glass, and subsequently went to St. Vincent's Hospital to be treated.

Publication of Labor Union Held Up by Strike

Some of the difficulties incident to the issuance of a labor-union publication are indicated by the following notice, printed in the current issue of *Labor*, a weekly newspaper published by the Plumb Plan League at Washington: "Editor Phil Ziegler of the *Railway Clerk* requests *Labor* to announce that the September issue of the magazine is delayed on account of a strike of pressmen and assistants."

Ohio City Homes to Get More Coal

As a result of a conference of representatives of northern Ohio cities, coal men, railroad officials and the Intestate Commerce Commission an agreement has been reached whereby northern Ohio cities will obtain more coal for home use. The plan provides that bituminous coal operators, through a committee, shall pledge themselves to furnish sufficient quantities of coal to take care of domestic needs. Distribution will be in the hands of local committees named by chambers of commerce or other civic bodies.

Urge President Wilson to Fix Price of Coal

A committee of manufacturers and merchants of Danbury, Conn., has wired President Wilson asking him to take control of the price of coal under the Lever Act. In its telegram the committee says many coal operators "are taking advantage of present conditions and charging $14 at the mine for anthracite coal."

Name Director for Rehabilitation

Industrial rehabilitation work, provision for which was made in a recent act of Congress, will be under the direction of Lewis R. Carris, former Assistant Commissioner of Education in New Jersey. Appointment of Mr. Carris as Assistant Director was announced by the Federal Board for Vocational Education. He will have supervisory control of the work as it is carried on by State boards for vocational education. He has been employed by the Federal board since 1917.

Government Drops Profiteer Hunt in Texas

Federal officials in Texas have dropped the inquiry into the prices and profits on coal, following instruction from Attorney-General Palmer. Such investigation as had been made failed to disclose evidence of profiteering, it is admitted. Amarillo retail coal dealers showed that they were selling coal at retail at a profit of 48c. a ton, and it is said that profits in other towns were little more than this.

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

Rich Resources Opened in Northern Alberta

That one of the richest countries in respect to natural resources in the world will be opened up in north Alberta now that the Canadian Pacific Railway has acquired the Edmonton, Dunraven and British Columbia Ry., was the statement made by J. R. Renton, of Calgary, after an extensive investigating trip through the territory that will be served. Not only is there a tremendous grain growing country in the far north, but there are excellent cattle ranges and oil and mineral resources whose extent can only be guessed at.

Arrange Joint Operation of Tar Products Company

The Koppers Co. and the Aluminum Co. of America, both of Pittsburgh, have jointly purchased the American Tar Products Co. and will operate it together. It is planned that operations shall include manufacture of electrodes for the use of the Aluminum Company, as well as a continuance of the general tar refining work.

Railroad Men Uphold Harding's Stand on Cummins-Esch Act

A delegation of railway employees living in Marion and nearby cities marched to Senator Harding's front porch on Sept. 13 in a demonstration of their allegience to his candidacy and of their disagreement with the labor leaders opposing him because of his support of the Cummins-Esch Act. The delegation represented the Marion Harding and Coolidge Railway Club and presented to the Senator a resolution declaring that their visit was in protest against misrepresentation of his position on railway labor. A speech by the nominee reiterating his faith in the Cummins-Esch law was a part of the program.

Radical Labor Men Fail To Break Out

The committee appointed to draft a constitution for the new Central Trades and Labor Assembly met in New York, Sept. 15, went over tentative drafts and adjourned to meet again on Sept. 24. At that time it is expected the document will be completed. Though radicals, who sought to break up the meeting Sept. 10 have been making threats of bolting the new organization, their representatives sat in harmony with the conservative majority at the last meeting.

Employees Buy Railroad's Stock

One thousand employees of the Lehigh Valley Railroad have purchased an average of 4.4 shares of the company's stock apiece since they were offered the opportunity to subscribe for it on the instalment plan a short while ago, according to E. E. Loomis, president of the road. All classes of employees are represented among the purchasers of approximately $200,000 worth of the stock, many of them paying for it out of the back pay given to them in the recent wage award announced at Chicago.

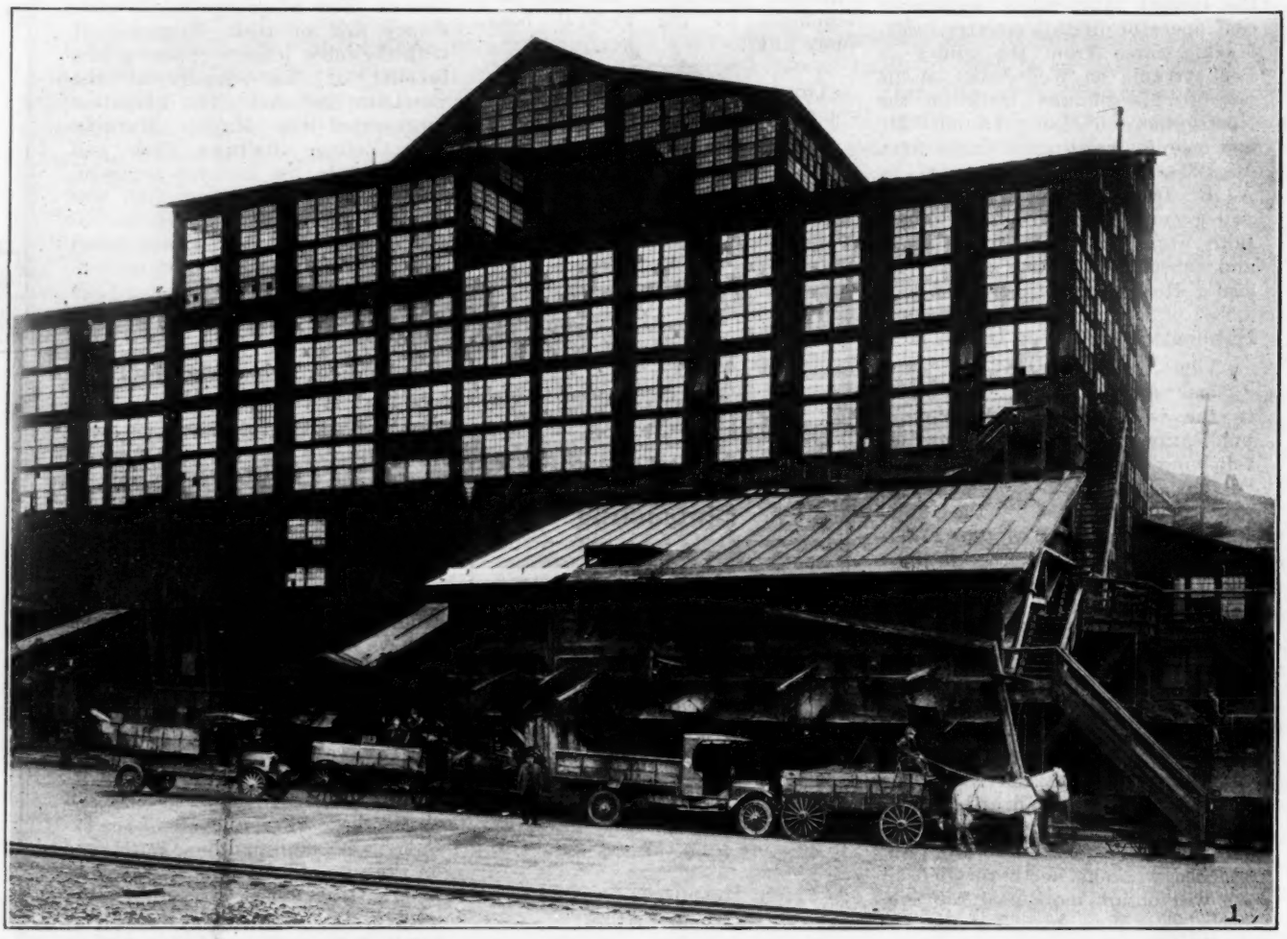
N. Y. Central Authorized to Issue Bonds

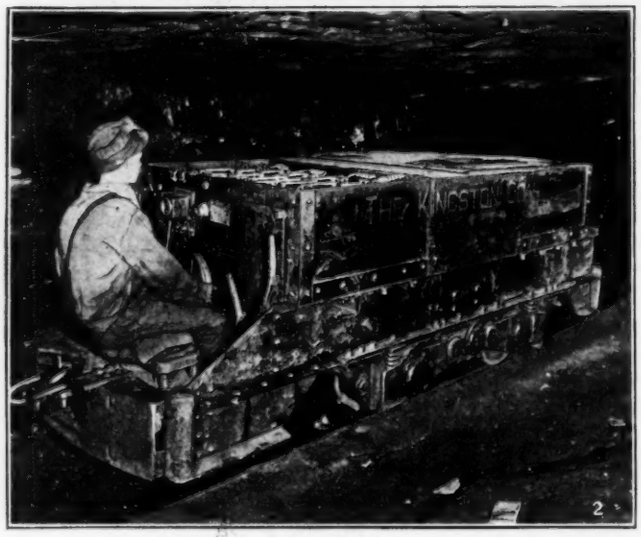
Authority was given the New York Central Railroad Co., Sept. 15 by the Interstate Commerce Commission to issue collateral trust bonds to the amount of $25,000,000 and refunding and improvement mortgage bonds to the amount of $25,000,000.

Miner Earns $245 in Two Weeks; Missed a Day, Too

Joseph Varga, a coal miner employed by the Marion mine of the West Penn Bi-Product Coal Co. of Mount Pleasant, Pa., for two weeks' pay drew $245. He missed one day in the two weeks.

Through the Coal Fields With a Camera





Above and Below at the Plants of the Kingston Coal Co.

(1) LOADING WAGONS AND TRUCKS WITH COAL FOR LOCAL DELIVERY AT A KINGSTON COAL CO. BREAKER

In rear of the retail coal-pocket, railroad cars are being filled for shipment. Many, and perhaps most, anthracite mines are located in industrial centers of great activity where coal is in demand for both manufacturing and domestic uses. The local trade, supplied by motor truck and wagon, is in consequence of great importance.

(2) A 5½-TON LOCOMOTIVE IN THE LANCE BED, NO. 2 SHAFT

This Ironton storage-battery machine is extra short and slightly higher than the regular type. It is built to fit existing conditions. A short wheel base is necessary on four-wheeled locomotives in order to enable them with ease to traverse curves of short radius and to avoid nosing into ribs and timber on sharp turns.

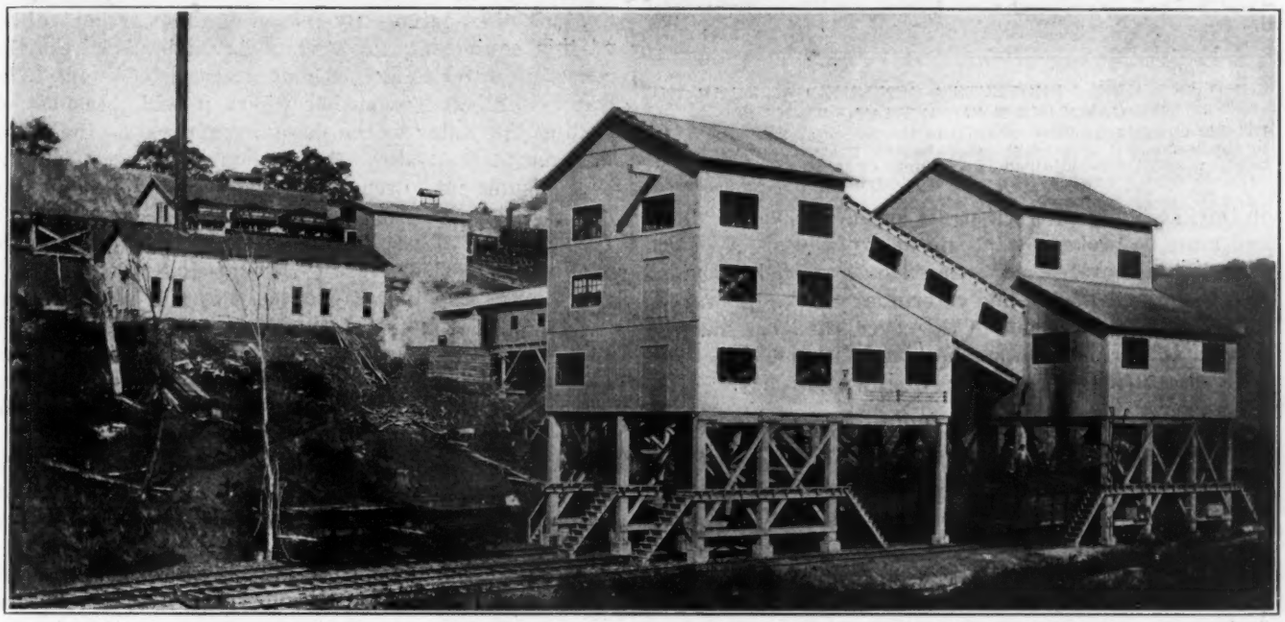
(3) A TIMBERED MANWAY IN THE RED ASH VEIN, NO. 4 SHAFT

The pack walls upon either side are built of gob. Traveling on such a manway as this is safe, speedy and preferable to travel on the haulage roads. Where a good manway is provided there is less danger that miners will be tempted to violate the safety rules by traveling on the adjacent trackways.

Solid Cars at Strip Pit Combine Stability, Strength and "Dumpability"

Stripping at Unionvale Uncovers Coal Having Roof Too Bad to Mine Otherwise—Portable Gasoline Pump Saves Ditching—Solid Cars Meet Loading Shocks and Dump Icy Coal with Facility—Rubber Belts and Movable Grizzlies in this Coal "Concentrator"*

By D. J. Baker
Wilkinsburg, Pa.



SUBSTANTIAL COAL PREPARATOR OF UNIONVALE STRIPPING PIT
On the side hill can be descried the train of loaded cars from the stripping with the house in which the rotary dump is located. A 48-in. belt carries the coal from the 50-ton hopper under the dump to the tipple in the foreground.

WHEN the war was in progress activity developed in the coal industry—especially in western Pennsylvania and Ohio—and many strip-pit mines opened. These operations, an appreciable percentage of which sprang into existence over night to meet the demand for coal, were in many cases equipped to strip and prepare their product in only the crudest fashion. As emergency mines they served a purpose because of the unusual conditions prevailing at the time in which they flourished. In normal times the mushroom mine of war days finds the going not of the easiest, for unless the coal from the strip pits is carefully prepared the open market looks askance at the finished product.

New stripping operations—or those dating their initial development from the Armistice—are vastly different from their war-baby sisters in general layout and equipment. So great is the care now taken at these mines in the preparation of the coal that the product received from the consumer varies little from that mined by underground methods. As a matter of fact, there is small choice between the two fuels, providing that the coal from the strip pit has been removed from under a sufficient amount of cover.

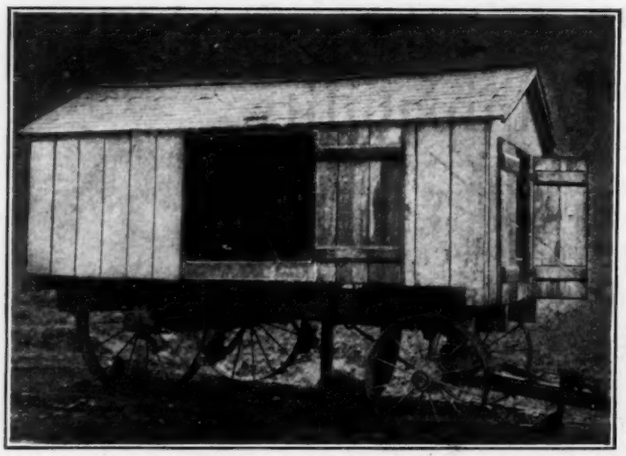
Depth of Unionvale Stripping is 35 Ft.

Eastern Ohio boasts of one stripping operation that differs radically from others in the general nature of its equipment. Four miles east of Cadiz and twenty-eight miles north of Wheeling at Unionvale can be found a strip mine which for an operation of moderate size is one of the best equipped of its kind in the country. Here the R. L. Culbertson Coal Co., a Youngstown concern, has within the last year started operations on a 400-acre tract of land that is underlaid with the Pittsburgh bed of coal, or the No. 8, as it is better known in Ohio. This averages about 6 ft. in thickness and is under a cover almost uniformly 35 ft. deep.

In consequence of the uniformity of the overburden there is only a small quantity of crop coal to be handled, while the topography of the country makes it easy to drain the water from the pits. All things considered, a condition is found that is nearly ideal for the stripping method of removing coal.

A Marion 300 model steam shovel provided with a 90-ft. boom and a 6-cu.yd. bucket is used to remove the overburden. This burden, it is true, seldom exceeds 40-ft.

*As in many other tipples the actual dump is no longer in the main building but in a shed alongside connected by a conveyor line. It is difficult to retain the word "tipple" when describing the building in which the coal is not tipped, but where it is prepared by picking, crushing and sizing. It would preferably be termed a concentrator, as in iron-ore preparation, because the coal is concentrated by the removal of the slate. Yet crushing in this case is not done for the purpose of concentration, as it is in a mill or breaker, so the term is still inadequate. "Breaker" is a good word for the purpose but it expresses only one operation out of many. "Preparator" might be suggested as a better word than any other.—Editor.



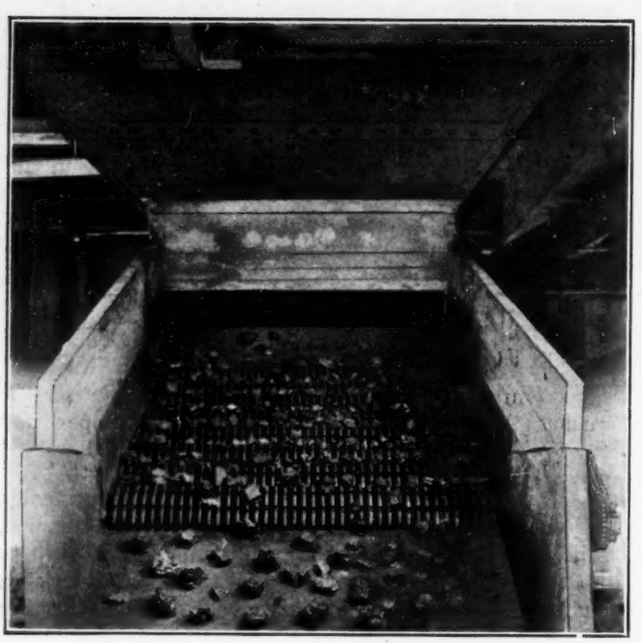
SHED ON WHEELS PROTECTS A CENTRIFUGAL PUMP AND THE GASOLINE ENGINE THAT DRIVES IT

By this means the pump is taken to the water and not the water to the pump. It is readily taken to any part of the work and, being wholly self-contained, no piping or wiring is needed as with steam, air or electricity.

in thickness, but the rock strata are of unusual hardness and must be broken by the aid of explosives. A second —smaller—shovel is a Marion No. 36 model, provided with a 2-cu.yd. bucket and caterpillar truck. By reason of the uniform thickness of the cover, the large machine is able to furnish the smaller one with plenty of uncovered coal without crowding its own capacity.

Coal Almost Unminable Without Stripping

The surface of the coal is prepared quite carefully before loading, as indeed it must be, for the roof is a thick fireclay of extreme friability. One of the main reasons why this bed of coal has never to any appreciable extent been mined in this neighborhood by underground methods is found in the nature of the roof that overlies it. In stripping, the surface of the coal is first scraped with pick and shovel and later brushed before loading. The floor is a firm sandstone, such as delights the eye of the stripper, since it provides an excellent shoveling surface and insures the cleanliness of the product. Little of the bottom is ever disturbed, even when subjected to the hard pounding of the shovel. It is not necessary to shoot the coal before loading, as the smaller machine is able with no great effort to break it loose from its undisturbed condition.



COAL PASSING OVER GRIZZLY FROM CRUSHER

At this tipple crushed run-of-mine or else slack and one size of coal can be delivered. Note the uniformity of the size of the screened product.

Moves Pump to Water, Not Water to Pump

In stripping operations the problem of dewatering the pits often assumes large proportions, but not so at the Unionvale mine. The operator is here employing a portable centrifugal pump mounted on a covered wagon and operated by a gasoline engine. The Domestic Engine & Pump Co. supplied the pump, which has a capacity of 265 gal. per min., while the Goulds Mfg. Co. built the engine. By reason of the easy portability of this equipment, no attempt is made to direct the collecting water to any specially constructed sump. The water is allowed to gather where it will. Instead of leading the water to the pumping apparatus, the pump is taken to the water. A few hours' operation of this unit is sufficient to remove all water that collects during the day.

The portable gasoline engine and pump is a piece of apparatus that rightly belongs to most stripping operations. By its use not only is the necessity for constructing a sump for the water avoided but electric and steam lines need not be bothered with. Since all machinery compounding this unit is inclosed by the wagon, there is little likelihood that the mechanical parts will suffer in inclement weather.

Sixty-pound rails are used for the trackage in the strip pits, and they are laid to a 36-in. gage. Two 16-ton Vulcan locomotives transport the cars between the small shovel and the tipple.

In the matter of design and details of construction these dump cars differ radically from those usually employed. This is the first stripping operation in the country to make use of a solid-body dump car.

Solid-Body Dump Cars Used for Haulage

When the equipment was being purchased and the mine was being laid out, side-dump cars with a capacity of 4 cu.yd. were ordered. This was in general conformity with the practice followed at many stripping operations. It was desired to dump these cars into a hopper in order that the coal might be fed to the tipple at a uniform rate. But side-dump cars may be discharged into a hopper only at a considerable expense of time, to say nothing of risk to life and limb. The design of such rolling stock permits of only a comparatively frail car being built, and one that is ill suited to withstand the rigors of the strip pit.

Stripping coal is perhaps more of a contractor's job than a mining engineer's, for it is an earth-moving proposition. The contractor is familiar with the side-dump car, and this is undoubtedly one of the reasons why such cars have had a general use around strip mines. In this case soon after the cars had been ordered the decision was reached to install a rotary car dumper and discharge the loaded cars in this manner. It was believed that the cars already ordered could still be utilized by bolting down the sides. The possibilities inherent in a solid type of car were not to be denied, however, so the Western Wheeled Scraper Co., which had the contract for the cars called for on the first order, undertook the building of the new equipment.

The solid type of dump car for use around strip pits

possesses too many advantages to be passed over lightly. For operations equipped to handle moderate outputs this is perhaps the best type of rolling stock that can be employed. The cars in use at Unionvale have a capacity of 5 cu.yd., which is one yard greater than the same weight of equipment when built for side dumping.

Solid cars have a lower center of gravity than those of the side-dump type, and as a result are not so liable to derail or overturn on track that is faulty or light and hastily laid. Such cars ride the track easier and will stand up better under the rough treatment that this equipment receives when being loaded. The cars, being simple in construction, have but few parts to get out of repair. Furthermore they are cheaper in first cost than the side-dump model, to construct which requires more iron parts.

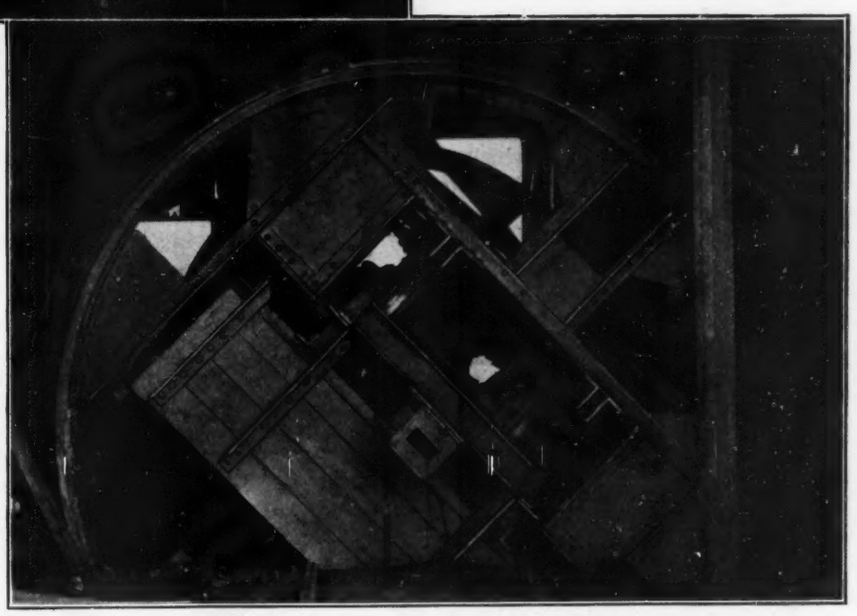
Trips, each composed of eight cars, are handled by two dinkey engines. As one trip is being dumped the other is being loaded. As a little more time is required to load the cars than to dump them, the empty trip gets back before the cars at the shovel are filled. The empty trip, accordingly, pulls into a siding near the entrance of the pit, where it waits until the loaded trip leaves for the tipple. Thus there is an adequate supply of empties on hand at the small shovel and that machine does not lose appreciable time waiting for the arrival of cars.

A single-car rotary dump manufactured by the Car Dumper & Equipment Co. has been installed on a hillside overlooking the tipple that lies in the valley below. A wooden building houses this apparatus. The locomotive coming from the pit with its string of eight cars pushes the trip through the shed and dumper until the car connected to the engine is in proper position within the revolving mechanism. This car is then turned through an angle of 135 deg. without uncoupling, as all cars are equipped with vanadium-steel swivel couplings. As the car rights itself the trip is moved forward by one car length. This operation is repeated until all cars have been discharged.

The dumper, constructed of steel girders, is operated by steam at 125 lb. pressure. Two cylinders, attached to the rings of the revolving mechanism by means of

Solid-Body Car in a Revolving Dump

The coal is not broken nor the car injured in the revolving dump. Being rigid the solid car stands the strains of coal loading, which, by the way, are a mere trifle compared to those a car suffers when loaded with rock or stumps as in anthracite stripping. The car with a movable side, end or bottom has always been regarded as having a weak spot that makes it necessary to give it additional stiffening weight. It also serves to direct the car with frequency to the repair shop and to lessen the reliance that can be placed on its daily service.



Car Tilted at 135 Deg. on Dump

No surer way of emptying a receptacle exists than to turn it upside down. End-gate and side-gate cars often discharge only with the aid of jerks or the use of a bar. Especially hard to remove is frozen coal. The revolving dump is the surest of unloading devices. There is no chance for the coal to wedge or clog, and it is therefore emptied without delay. In this case only one car is dumped at a time, but it does not have to be uncoupled, for a vanadium-steel swivel coupling enables any one car to revolve while the others attached to it retain their place on the regular track.

UNIONVALE STRIPPING OF R. L. CULBERTSON COAL CO., YOUNGSTOWN, OHIO
The cover over the coal is 35 ft. thick and the seam itself measures 6 ft. The excavator illustrated is lifting the coal with a two-yard shovel into solid-body cars. The rock has to be broken by blasting.

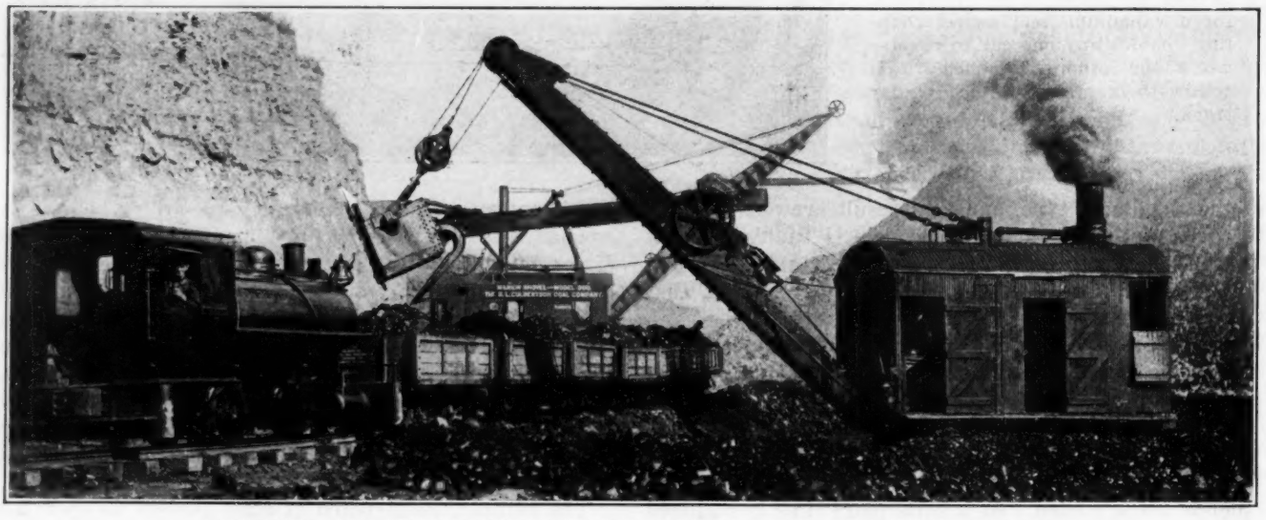
two wire ropes, turn the dump over and right it again. Thus the equipment is kept free from gears or other parts that might get out of order in the course of the heavy continuous service that is demanded. The dump is supported on four wheels hung in roller bearings on each end of the supporting shafts.

Conveyor Belt Used as a Picking Table

While the dump has a capacity of four cars per minute, it is rarely called on to operate at this speed, as the storage hopper into which the coal falls is not constructed to discharge its contents as rapidly as it may be filled. Usually about a minute is consumed in discharging a single car. That is, this amount of time is used in the entire operation, which includes moving the car into and out of the dumper. This speed allows the coal to be removed from the hopper at a rate that is consistent with the capacity of the preparation equipment on the tipple.

After leaving the dump cars the coal passes into a steel hopper having a capacity of 50 tons, which it leaves over a reciprocating feeder, by means of which it is evenly distributed upon a 48-in. belt. The coal travels on the belt for a distance of about 190 ft. before it reaches the tipple. As is shown in one of the illustrations, a section of the belt surface is used as a picking table. Two men at this point stationed on either side of the conveyor remove foreign material, which is tossed into wooden chutes leading away from the sides of the conveyor shed.

The tipple, which is constructed of wood, as are all of the plant units, is admirably equipped to prepare the stripped product thoroughly. A 10-hp. motor operating on 240 volts alternating current moves the conveyor belt at a speed of about 100 ft. per min. This is an efficient rate of travel for delivering the coal to the screening apparatus. Since the belt moves on an incline, no great amount of power is required to keep it in operation, which accounts for the small capacity of the motor used to drive this 386-ft. conveyor.



STRIPPING AND COAL-LOADING SHOVELS WITH LOADED TRIP OF SOLID CARS
The larger shovel has a 90-ft. boom and a 6-cu.yd. bucket, while the one in the foreground has a shovel only one-third as capacious and is mounted on a caterpillar truck.

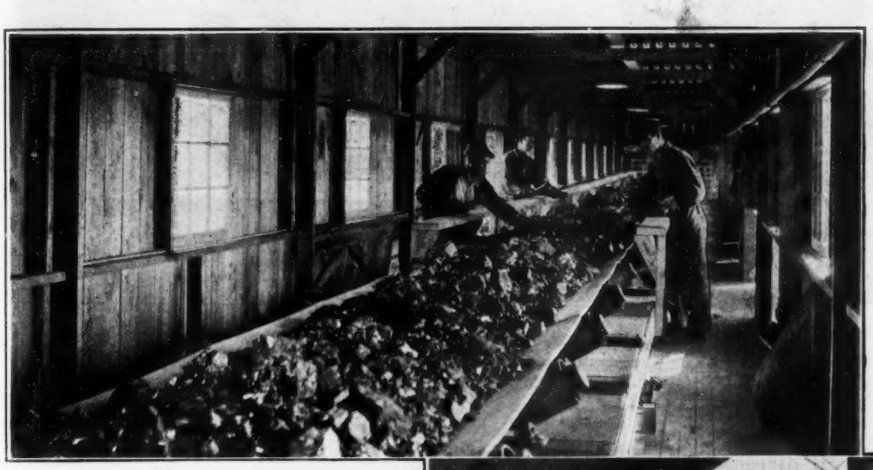
As the coal leaves the belt within the tipple it enters a second hopper. By means of revolving grizzlies suspended from a truck that moves on a track in turn suspended from the roof trusses of the building, either a 1¼ or ¾-in. separation may be secured. When it is desired to load coal of a definite size, the truck supporting the revolving steel plates is moved by hand at right angles to the hopper until the grizzly giving the desired size is in place under the lip of the hopper-discharge plate. Although there are two tracks beneath the building it is possible to load only any one special size of coal at a time. This arrangement provides for the loading of a special size into one car and either run-of-mine or screenings into the other car.

The tipple is actually composed of two buildings: the screen house and the crusher house, the two being connected by a conveyor shed. When the company has orders for crushed sized coal, the product in the hopper, which is cleaned run-of-mine, is directed onto a 36-in. belt that is approximately 100 ft. in length. By this the coal is conveyed to a rotary crusher built by the Robins Conveying Belt Co., which furnished the rest of the tipple equipment.

The crusher, which is operated by a 75-hp. motor through a belt connection to a flywheel on the crusher shaft, can be so set as to give any size from 1 to 7 in. Coming from the crusher the coal may either be loaded as crushed run-of-mine or a definite size or both, as two loading chutes are provided. If the coal is sized it passes over a grizzly. While only two tracks pass beneath the tipple buildings, it is possible to load three distinct sizes simultaneously, or to load four separate railroad cars. Both tipple buildings are well lighted, as is also the conveyor shed. This is a detail that is highly desirable where stripped coal is being handled, as this product should be kept under careful scrutiny.

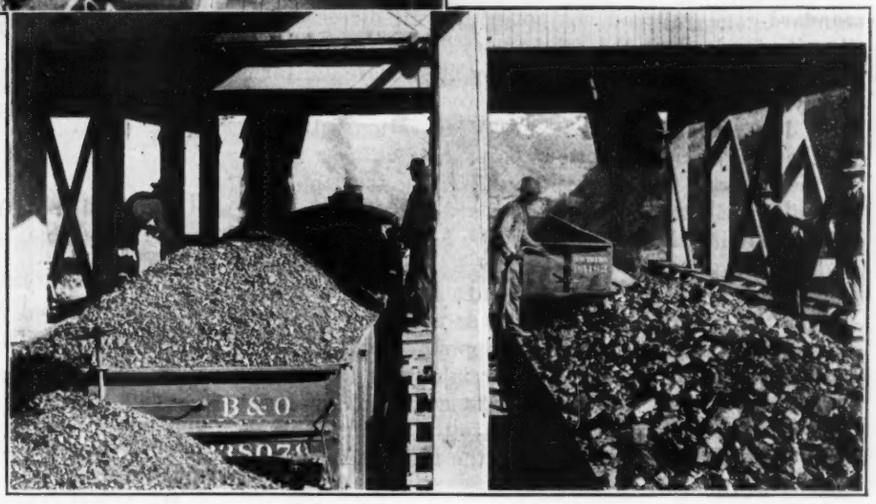
Boiler House Supplied by Side-Dump Car

Power for the operation of the preparation plant and the rotary dump is generated in a brick building situated near the dumphouse. This building is divided by a brick partition so that the steam-producing apparatus may be separated from the electrical equipment. In the boiler house a 100-hp. Erie City boiler has been installed, whereby steam is supplied to the dump and the electrical generating equipment.



Belt Conveyor

Coal is conveyed from a 50-ton hopper at the dump house to the preparator building on a 48-in. belt, the travel being about 190 ft. This travel gives opportunity for picking out the refuse material. As the belt moves on an incline a 10-hp. motor operating on 240 volts, alternating current, readily keeps it in motion at a speed of about 100 ft. per min. Belt conveyors are coming quite generally into use, especially where the travel is long. They have long life and give little or no trouble.



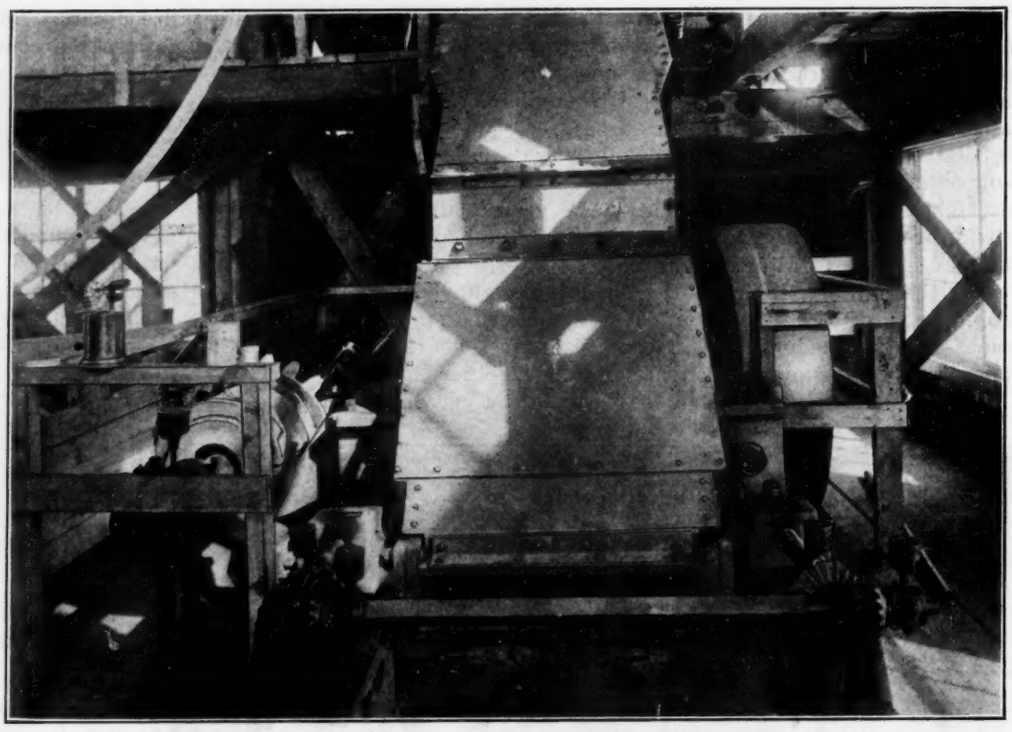
Under the Tipple

From elevated walk ways the trimmers closely inspect the coal. No strip-pit coal can, in normal times, go to market just as it comes from the loading shovel. After all has been said about the miner he is more scrupulous than the steam shovel, which picks up all it finds. Careful picking and preparation, however, overcome this difficulty, and there is no reason why stripped coal should not be as well-prepared a product as underground coal that has been over a picking belt and better than coal that has not been thus selected.

Coal is delivered to the bunkers by means of a 4-cu. yd. side-dump car. This is taken into the strip pit along with a trip of the solid cars when coal is needed at the power house. Ashes are removed from the building through a pipe line extending underneath the concrete floor and reaching to the dump pile, which contains the refuse from the picking table. The ashes are carried through the pipe by a jet of water.

In the second compartment of the power house a 100-kw. Curtis steam turbine is direct-connected to a 125 kva. 240-volt alternating-current generator. With this inexpensive installation sufficient energy is produced to operate all the motors which drive the preparation machinery.

The plant of the Culbertson company is one of the most up-to-date of its kind. While the tipple has a capacity of 1,600 tons daily, it is seldom that over 1,000



Discharge to Crusher

Crusher is operated by a 75-hp. motor, belt-connected to the crusher shaft. It can be set to deliver any size from one to seven inches.

tons are loaded in a single day. The car shortage has hit this operation quite as hard as any other in the bituminous fields, and curtailment of production has resulted.

In comparison with larger stripping operations where standard-gage railroad equipment is run directly into the pits for loading the solid type of dump car has its advantages. In the first place by it a more uniform supply of coal may be delivered to the tipple, where it is desirable to maintain steady operation. In cold weather the dump is operable quite as readily as in the warmer months. The method of feeding the tipple by dropping the bottom gates of standard-gage rolling stock and permitting the coal to enter the hopper to be fed by flight conveyor to the tipple cannot be said to be readily workable in all weathers. Such gates are liable to freeze shut in the winter and cause delay in unloading the coal. This is especially true around stripping operations since at such plants considerable water is almost always encountered. Where dump cars are employed no great amount of attention need be paid to the laying of track, or at least not as much as where the rails must support heavier equipment.

It is the common practice to locate the railroad tracks upon the berm of coal left by the smaller shovel. While such a foundation is perhaps a solid one, yet operation is made safer when the equipment running over the tracks is of a size that allows a greater area for the sustention of the weight. This is accomplished through the use of solid-dump cars.

Coal Mining Institute Proceedings Issued

THE ANNUAL volume of Proceedings of the Coal Mining Institute has been issued and is being distributed among its members. It is an attractive volume 10½ x 7 in stiff cover, 188 pages, and contains much valuable coal-mining information. This volume may be obtained through application for membership in the Coal Mining Institute by addressing Secretary H. D. Mason, Jr., 911 Chamber of Commerce Building, Pittsburgh, Pa.

Indiana Coal Production Recedes

PRODUCTION of coal at 191 mines in Indiana during the week ending Sept. 11 is reported as 493,629 net tons as compared with 532,882 net tons at 192 mines the week preceding. These mines worked 75.48 per cent of full time. Car shortage was responsible for 16.77 per cent of the time lost, while labor trouble and mine disability accounted for 3.45 and 4.30 per cent, respectively.

Urge Establishment of International Office For Coal Distribution

THE Twenty-fifth International Congress of the International Miners' Federation has requested the International Labor Office of the League of Nations to undertake to find the best method of establishing an International Coal Office for the purpose of acquiring a more equitable distribution of coal throughout the world, according to a statement given out by the International Labor Office.

M. Albert Thomas, Director General of the International Labor Office, who was present at the session during which the creation of an International Coal Bureau was decided upon, made it clear that the distribution of coal in accordance with needs of various nations would in no way modify or alter existing agreements arrived at by virtue of the Treaty of Peace or of the Spa Conference and that such a task could only be carried out in co-operation with other branches of the League of Nations. He stated, however, that subject to these reservations he was ready to respond to the appeal made by the miners' congress and agreed to bring the matter before the governing body of the International Labor Office at its meeting on Oct. 5.

It is thought that such an international coal bureau will eliminate much of the present loss and waste involved by defective organization of distribution and transport of coal throughout the world.

Caterpillar Tractor Supplants Team at Pennsylvania Coal Mine

Handy Device Gathers Mine Timbers, Hauls Rails and Props, Pulls Railroad Cars and Performs in General Work of Mine Team at Clarion County (Pennsylvania) Mine

BUILDING engines of destruction for war-time purposes is an experience not without its advantage in the times of peace that ultimately follow. The war taught us many things about tractors of the caterpillar type. The modern version of beating our swords into ploughshares is to remodel our tanks into tractors.

Few coal operators have yet realized the thorough practicability of utilizing small caterpillar tractors to replace teams in general haulage work around the mines. The ability of these machines to traverse exceedingly rough country is well illustrated by war-time photographs of tanks lumbering over trenches on the Somme and breaking down trees in the Argonne forest. A caterpillar tractor will not recognize a hill.

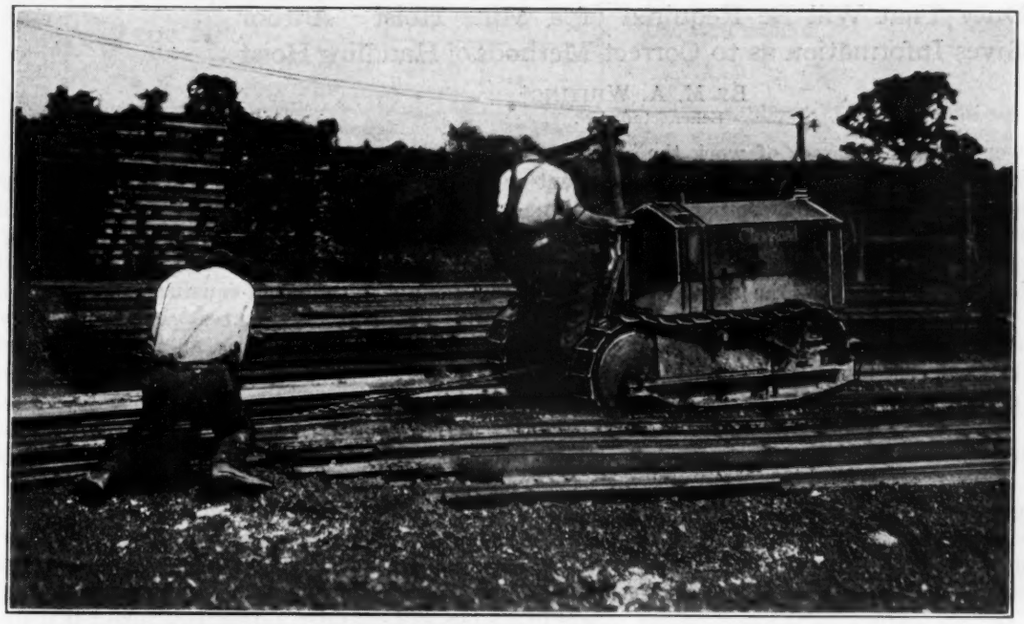
At the mine of the Hamler Coal Co., in Clarion County, Pennsylvania, a 3-ton tractor of the caterpillar type has proven itself so versatile that the company officials are prone to wonder how they were ever able to get long without it. This concern is operating in the lower Kittaning bed of coal and has a daily output of 1,000 tons.

Goes Eight Miles to Gallon of Gasoline

The machine, which was built by the Cleveland Tractor Co., has four cylinders each having a 3¾-in. bore and a 5½-in. stroke. The speed of the motor is 1,200 r.p.m. Either gasoline or kerosene may be used as fuel, and approximately eight miles may be traversed on a single gallon of gasoline. The Hamler officials, who purchased the machine more or less as an experiment, have found that the above-mentioned mileage may be realized on all kinds of grades and roads and in all sorts of weather.

Before the tractor was purchased, a team was maintained for hauling at this company's operation. It was costing the firm about $6 a day for feed alone, to say nothing of the driver's wages. Inclement weather often suspended the activities of the team, though there was almost continuous need of its services.

Since the tractor has been in use, no regular driver has been required, as a man from the tipple may be pressed into service as an operator. It has been found that the tractor is able to haul as much as the team and do it in a much shorter length of time, while the cost of maintenance is materially less.



Tractor "Snaking" Rails

Around a mine there are usually good roads and bad. For delivery of coal the motor truck is to be favored, but for "snaking" rails and logs and for hauling props from the woods the tractor is supreme. A tractor will haul cars on the railroad track or logs in the woods. It is at home everywhere, and disregards grades.

Props Hauled as Much as Fifteen Miles

At the Hamler mine the tractor furnishes the motive power for the dragging of rails and heavy timbers from the railroad siding to the surface plant or to points near the mine cars when the material has eventually to be taken underground. The tractor may be hitched to one or two spring wagons when supplies have to be moved for long distances on the surface. Props have been transported by this method over as much as fifteen miles. The machine has been used to retrieve railroad cars that have been inadvertently allowed to pass beneath the tipple before being completely loaded.

This company owns much of the surface rights to its coal land, and much of the territory owned is wooded and furnishes excellent mine timber. The country is rough, however, and quite difficult for teams to operate over. This natural resistance of the land is overcome when the tractor furnishes the means of moving the wagons. As is well known, this machine is able alone to surmount almost any kind of hill.

If the grade is too steep, which is seldom the case, a cable may be used to advantage by extending it from the wagon to the tractor, which has first been moved to the hilltop. By pulling on the cable the machine is capable of exerting greater tractive effort without an appreciable degree of slippage, as it is aided by gravity in moving down the opposite side of the hill. It is almost impossible to stall even on wet ground.

Another point in favor of the tractor as compared to a team is that it is literally able to "turn on a ten-cent piece." It makes little difference whether the tractor is attached to the front or the rear end of a wagon, since the tongue in any case is removed.

It would appear that there is an excellent opportunity for some wide-awake conveyance manufacturer to build a specially-designed cart to be used with a tractor. A wagon provided with two "fifth" wheels, either of which could be locked, also should prove advantageous.

Factors To Be Considered in Calculating Proper Hoist for Specific Conditions*

Nine Cases Are Considered as a Means of Arriving at the Duty That Will Be Required of a Mine Hoist—Author Gives Information as to Correct Methods of Handling Hoist

By M. A. Whiting†
Schenectady, N. Y.

IN PROVIDING power for many classes of work the proper types and capacities of the motors to be provided are determined most suitably by comparison with similar, and in many cases duplicate, drives. In mine hoisting, however, the form and depth of the mineral deposit, the daily output desired, the arrangements of the shaft bottom and tipple, underground haulage conditions and various other factors all affect the hoist duty. It is the exception therefore to find two hoists working under practically identical hoisting conditions.

In one list of installations comprising 217 equipments of 200 hp. and larger, of 99 different motor ratings, the only duplicate hoisting conditions are two groups each of five duplicates, one group of three, and six groups of two each. In all but one of these cases the openings having duplicate hoisting conditions are located on the same property.

It is therefore necessary in nearly every case to calculate a duty cycle based on the data covering proposed hoisting operation. If the conditions are known, the duty cycle for mine hoisting can be predetermined more closely than for almost any other complex operating service. The duty consists principally of accelerating and retarding masses and hoisting and lowering weights, both of which can be calculated definitely in accordance with the fundamental laws of physics. The principal variable element, the friction, fortunately is a minor consideration, so that even a considerable percentage of error in its assumed value will affect the total result only slightly.

Calculation Answers Following Problems

The following conclusions can be drawn from a properly-calculated duty cycle:

(1) Whether the project as proposed is practicable—i.e., whether the number of trips per hour desired can be made for the depth, load, cage weights, caging time and other determining conditions.

(2) Whether changes in drum shape or other mechanical features are necessary or desirable.

(3) Type and capacity of drive, whether by direct-current or induction motor; continuous and momentary capacity of motor; in a direct-current Ward-Leonard equipment, the capacity of the generator and its driving motor; in a flywheel set, the capacity of the flywheel required for a stated degree of equalization of input.

(4) Details and special features required. (For example, if with an induction motor, an extremely short acceleration period is used, a liquid rheostat will not be fast enough.)

(5) Ease of operation—i.e., whether the operator can to all practical purposes meet the cycle; whether the wear and tear will be reasonable or excessive.

(6) Energy consumption and input peaks. From time to time a number of papers have been published covering methods of calculating duty cycles and the selection of drum shapes. This paper will not take up these topics but will consider a hoist equipment that has been installed to work under certain conditions but which actually may be operated in any one of several different ways.

Where Calculations Belie Practice

In actual operation duty cycles may differ in a number of respects from those calculated, most of these divergencies falling under the following heads:

(1) Small differences will occur because of the manner in which the electrical apparatus functions. For example, where an ordinary calculated diagram shows, during acceleration and retardation, a uniform input or one varying in a certain manner, the operation of the control equipment does not cause the input to vary at exactly this rate.

(2) Small differences will occur because of variations between the actual and the assumed mechanical conditions. For example, in hoisting a long trip of cars up a slope of varying grade, the duty cycle is commonly drawn as if the load passed abruptly from one inclination to the next, whereas actually the transference is gradual.

As the purpose of the calculated cycle is to insure the application of the proper drive, all differences under the two headings immediately preceding are immaterial

*Paper entitled "Mine Hoisting Duty Cycles," presented before the Engineers' Society of Western Pennsylvania.

†Power and mining engineering department, General Electric Co.

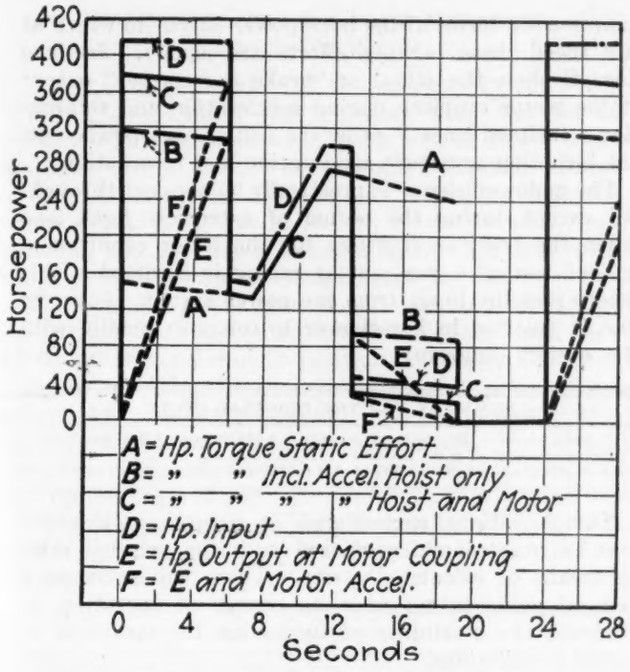


FIG. 1. CALCULATED DUTY CYCLE

Dotted line A, solid line C and dotted line A show combined static effort for the example selected for comparison. Adding algebraically the efforts for accelerating and retarding all parts except the motor, assuming uniform rate of acceleration, gives the line B-C-B. Including effort of accelerating rotor you get the line C-C-C. Other lines are clearly designated in legend.

so long as their effects are negligible. The engineer who works up the requirements should be able to recognize whether any of these effects are sufficiently important to influence the results, and if so he should accordingly modify his deductions from the original calculated cycle.

(3) Differences, from the figures assumed often important, occur by reason of the variation in the load. These include not only a change in the weight of the material moved per trip but changes in the mass of the drums and cages which have to be accelerated.

(4) Differences, often appreciable, occur because the time available for hoisting is greater or less than originally calculated. This variation in time available for hoisting may arise from a difference in time necessary for caging or from a difference in the number of trips per hour required.

(5) In some cases, even where the conditions to be met are as favorable as those originally assumed, the operator may handle the hoist with poor judgment, and obtain corresponding results, either from indifference or because the best method of operation has not been impressed upon the hoistman.

The subject is extensive and cannot be covered completely in a paper of reasonable length. Only a few of the most important possibilities will be discussed.

Most of the differences between assumed and actual conditions have their effect principally during the accelerating and retarding periods. In an induction-motor hoist approximately one-half the electrical energy drawn from the incoming line during acceleration is wasted in the resistor; likewise one-half or more of the energy drawn from the line during retardation is similarly wasted. Partly on this account differences between assumed and actual operating conditions are of greater importance in an induction-motor hoist than in a direct-current machine provided with Ward-Leonard control.

Example Selected as Basis for Comparison

The example chosen is one which is near the limit for which an induction motor is physically practicable, but for which in many cases such a motor would be the proper selection. (Under some conditions of power supply this case would require a direct-current hoist with flywheel equalization.)

CONDITIONS OF OPERATION TO BE MET

Weight of coal per trip	4,500 lb.
Weight of car	3,000 lb.
Weight of cage	9,000 lb.
Rope	1¼ in.
Vertical shaft, lift	245 ft.
Trips per minute	2½
Trips per hour	150
Time required for caging and dumping	5 sec.
Balanced operation only.	
Equalization of input not necessary.	

To meet these conditions the following details have been selected:

PROVISIONS SELECTED TO MEET CONDITIONS

Accelerate 6 sec., run 7 sec., retard 6 sec., rest 5 sec.
Drums cylindro-conical:
Four turns (plus holding turns) at 6 ft. diameter.
Four turns, on cone.
Four turns at 7 ft. diameter.
Assume drums 180,000 lb. ft.²
Assume 8 ft. head sheaves, each weighing 2,700 lb.
Assume a mechanical efficiency of 80 per cent.
Rope speed, at full speed of motor, on small cylinder = 1,045 ft. per min.
On large cylinder = 1,220 ft. per min.

This drum shape and the assumed values for acceleration, etc., may not be exactly those best suited to meet

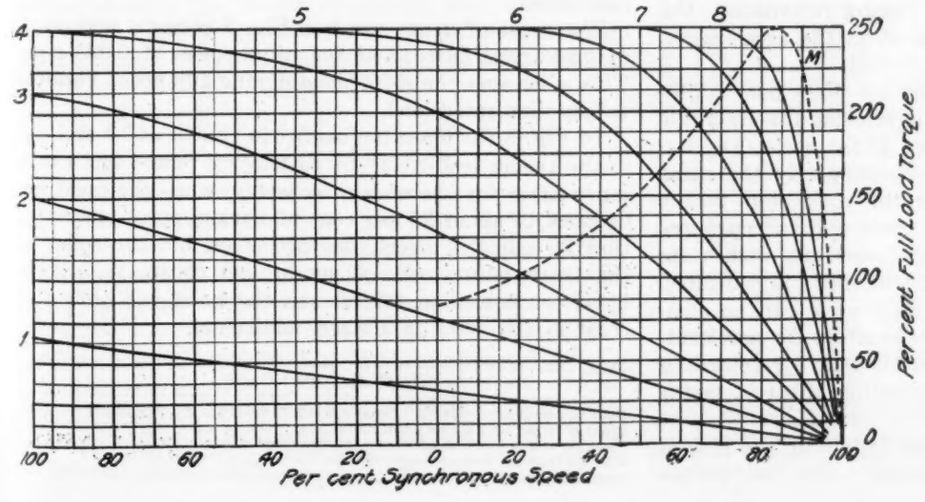


FIG. 2.

Torque-Speed Characteristics

Hoist has typical induction motors with eight-point mine-hoisting control.

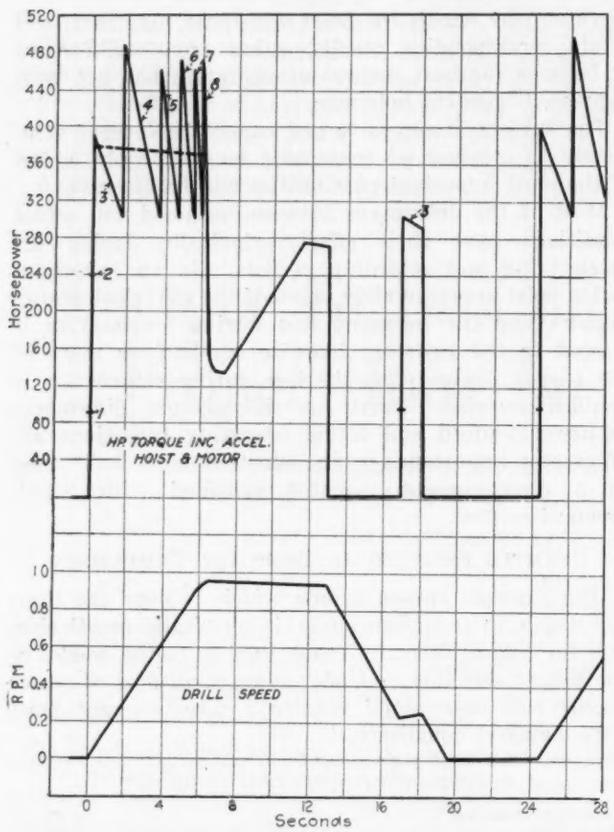


FIG. 3. CALCULATED CYCLE APPLIED TO PRACTICE

Current-limit relay settings have been adjusted to notch up at 300 hp. Trip is started by throwing master controller to full-speed position. Retardation begins at 13 sec. by cutting off power and coasting. After four seconds of coasting, resulting in a loss of 25 per cent of normal speed, the operator throws on his controller for 1.1 sec. and cuts off again so as to coast in. Drum speed at various points in the hoist is given at the foot of the diagram.

the stated hoisting requirements, but they approximate that condition. For specifications of this kind a number of drum shapes may be found, differing to some extent but providing nearly identical over-all results.

ORIGINAL UNCORRECTED CALCULATED CYCLE

Fig. 1 shows the theoretical cycle in accordance with the foregoing data. The combined static effort (i.e., total effort except acceleration) is shown by the dotted line A, the solid line C, and the dotted line A. The efforts for accelerating and retarding all parts except the motor were calculated for a uniform rate of acceleration. Adding these during acceleration to the static effort and deducting them during retardation, the total effort, excluding that involved in the acceleration of the motor, is shown by lines B-C-B.

Using the standard 16-pole 300-hp. 450-r.p.m. 2,200-volt motor and adding a suitable amount for its rotor acceleration, the root-mean-square of the cycle (i.e., the continuous load that will give approximately the same heating effect) is 285 hp. As the maximum torque requirements, both for the duty cycle and for purposes of construction and maintenance, also are within its capacity, the 300-hp. motor mentioned is suitable. Having selected the motor the duty cycle can be completed by adding to the diagram the effort for accelerating its rotor and deducting similarly that for retarding its rotor. The total diagram, including effect of motor rotor, is shown by line C-C-C.

All the efforts referred to in the foregoing are plotted in Fig. 1 as "horsepower torque" (i.e., as torque expressed in terms of the horsepower output to which at full speed these turning efforts are equal). Inclined lines E show the actual or "brake horsepower" output at the motor coupling during acceleration and retardation. Inclined lines F show the actual horsepower output including armature acceleration and retardation.

The motor efficiency is practically 90 per cent throughout except during the period of extremely light load when the hoist is slowing; for the latter condition a no-load loss of 5 per cent of rating is assumed. This determines the input from the power system, shown by line D (plotted in horsepower to compare readily with the output diagram).

SUMMARY FOR THE ORIGINAL CYCLE

Root mean square = 285 hp. input per trip = 4,325 hp. sec. = 0.90 kw.-hr.
Electrical efficiency of cycle, per cent..... 58
Over-all efficiency of cycle (at 80 per cent mechanical efficiency), per cent.. 46

The deviations encountered in actual practice can best be studied and compared with the original cycle by means of calculated cycles. These will serve as a general guide to engineers in charge of operation, in studying the possibility of improving the operation of actual installations.

I—CALCULATED CYCLE APPLIED TO PRACTICE

The hoist we are considering will naturally be controlled magnetically rather than by a liquid rheostat. The standard equipment has an 8-point acceleration, and its speed-torque characteristics are approximately as shown in Fig. 2.

Fig. 3 shows approximately how an actual duty cycle will look when operating substantially in accordance with the original assumed duty cycle. In order to develop an average accelerating torque equal to 379-369 hp., as required by Fig. 1, the current limit relay settings have been adjusted to notch up at 300 hp. The trip is started by throwing the master controller to full-speed position.

Since at a standstill the current inrush on the second point is less than the setting of the relays, the third point (i.e., second resistance contactor) closes immediately and the acceleration proceeds on the various points as shown by the correspondingly numbered parts of the horsepower curve. Since the torque available for acceleration fluctuates, the rate of acceleration is not strictly uniform. In this case, however, the minimum is so high a percentage of the average that the effect on the rate of acceleration is negligible.

The curve of drum speed in Fig. 3 shows a maximum of 0.945 r.p.s. instead of the rated speed of 0.923 r.p.s. This is because the motor load during full speed running is less than rated load.

In Fig. 3 the operator begins to retard at 13 sec. (as in the theoretical cycle) by cutting off power and coasting. After four seconds of coasting, when the hoist has dropped to about 25 per cent of normal speed, realizing that he will fall short, he throws on his controller to the third point, cuts off again and coasts in. If he holds the power on for 1.1 sec. the hoist will then just coast to the mark in 1.4 sec. additional.

SUMMARY FOR CASE I

Root mean square = 296 hp. Input per trip = 4,432 hp. sec. = 0.92 kw.hr.
Input is 2½ per cent higher than for original cycle.
Time per trip is ½ sec. longer than for original cycle.
Possible trips per hour are 2 per cent less than for the original cycle.

II—Coast to Rest Too Soon, Making a Re-start Necessary

To show how the skill of the operator in retarding affects the operation the following case will be of interest. It represents an operator who is either overcautious, new on the job or improperly trained. Refer to Fig. 3 as far as 13 sec. only. Assume that the operator cuts off power at 13 sec., coasts to rest before realizing that the trip is not coming in, then throws on his controller to pick up enough speed to coast in.

The hoist coasts to rest in 5.25 sec. and stops 0.26 revolutions short of the mark and with the loaded cage 5¾ ft. below the dumping position. The operator then jogs the hoist by throwing the controller over several points, but the current limit system prevents contactors from closing beyond the third point. The inrush of current amounts to 390 hp., which drops to about 330 hp. during the jog. Assuming that this time the operator's judgment is correct, he cuts off after 2.4 sec. with a speed of 0.16 r.p.s. and coasts in to the mark in 0.9 sec. more.

SUMMARY FOR CASE II

Root mean square = 306 hp. Input per trip = 5,016 hp.-sec. = 1.04 kw.-hr.
Input is 16 per cent higher than for original cycle.
Time per trip is 2.55 sec. longer than for original cycle.
Possible trips per hour are 9.5 per cent less than for original cycle.

The considerably increased input required for this case possibly is surprising. It is accounted for by the fact that the power used to finish the trip is applied between zero and 17 per cent of full speed. The electrical efficiency during this period (motor and resistor losses included) is therefore only 8 per cent, and since the ascending rope is on the large cyinder the torque required is high.

I once witnessed a striking example of operation somewhat along the line of case II but much worse. In a large induction-motor water hoist the overwind and overspeed device (of the governor type) had originally been set to work too soon, so that, unless the operator retarded unreasonably early in the trip, the hoist would be stopped short by this device. After it was properly adjusted the operator continued to retard too early. To make matters worse, instead of holding his controller on a low-torque point or jogging on and off, he brought his controller only a little more than half-way back and slowed down by dragging the hoist brake heavily. In finishing the trip the motor crawled along for 10 to 15 sec. at about 50 per cent overload and below one-quarter speed. The waste of energy was, of course, great, with nothing to show for it except larger power bills, increased wear and tear on apparatus and a slower rate of unwatering a flooded level.

III—Cut Off at Exact Point from Which the Trip Will Coast In

The ideal operation is obtained by shutting off at a point from which the hoist will just coast to the mark. Thus there are no partial-speed rheostatic losses except while accelerating, and the entire stored energy of the moving system is utilized in finishing the lift, so that the power consumption is a minimum. Obviously the wear and tear on equipment is least by this method.

To meet this condition exactly the hoist is run at full speed 0.375 sec. longer than in the original cycle. Current is cut off at 13.375 sec. and it takes 5.25 sec. more to coast in.

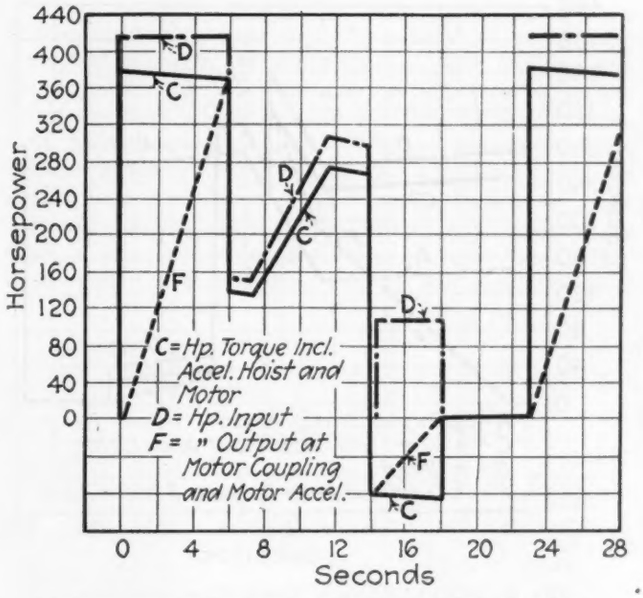


FIG. 4. PLUGGING TO SHORTEN RETARDATION

Cycle in this diagram is same as in Fig. 1, only full speed is held in this case 14 instead of 13 sec. The input necessary to develop plugging torque is shown by the line D between 14 and 18 sec. Energy between F and D in that period of time is wasted in resistor.

SUMMARY FOR CASE III

Root mean square = 284 hp. Input per trip = 4,183 hp. sec. = 1.16 kw.hr.
Input is 3.3 per cent lower than for original cycle.
Time per trip is ¾ sec. shorter than for original cycle.
Possible trips per hour are 1¼ per cent more than for original cycle.

It is evident that even a good operator cannot cut off as accurately as this, but if the loads are substantially constant he can cut off at a depth-indicator mark from which on the average the hoist will somewhat more than coast in. The final stop is then made easily by applying the brake at a low speed. Thus the ideal cycle, coasting to rest, is nearly realized; since the brake is applied only at a low speed the percentage of the stored energy wasted is low, and will not materially increase the energy consumption over that of the ideal cycle.

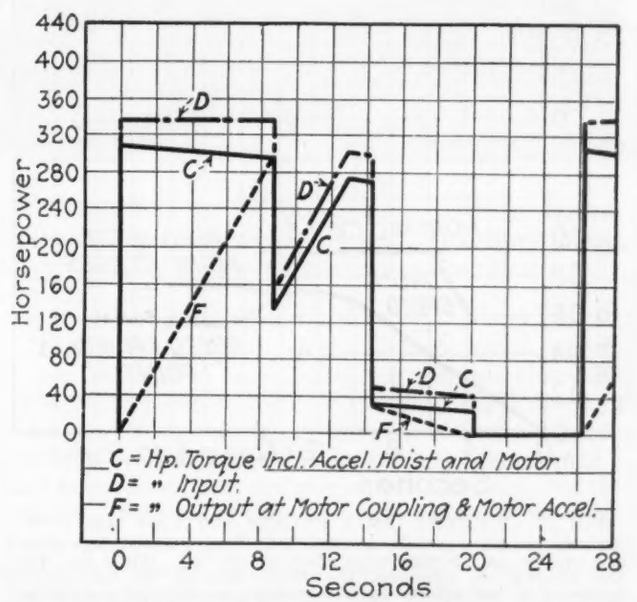


FIG. 5. WITH ACCELERATION OCCUPYING 8.7 SEC.

Retardation begins at same point—14 sec.—and is accomplished in 6 sec. Condition shown may result from throwing over control too slowly, too low a setting of current-limit relays or low voltage.

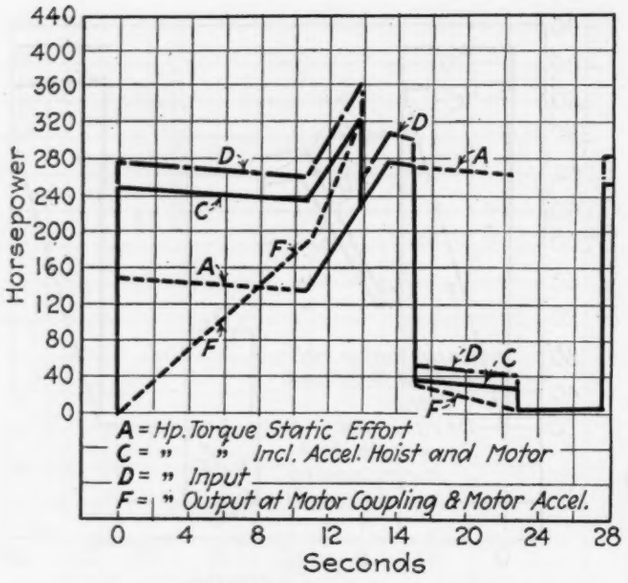


FIG. 6. ACCELERATION TIME FAR TOO LONG

Acceleration in this cycle occupies 14 sec. Some men, if hoist is not busy, may operate in this manner, believing that it is less severe on the equipment. As, owing to the drum shape, the static torque increases before the resistor is all cut out, this causes additional loss of energy.

GOOD AVERAGE OPERATION, CASES I AND III

An adaptable man should be capable of learning by himself, or at least should be capable of being taught to operate much better than in case II. Since loads vary somewhat and the operator's reaction-time will sometimes vary a fraction of a second, a good operator will bring in some of his trips by coasting to the exact dumping point; he will come in with a little to spare and use the brake slightly to stop many of his trips; he will tend to stop short and will put on power again to bring in a few trips. The average performance will therefore closely approximate the ideal.

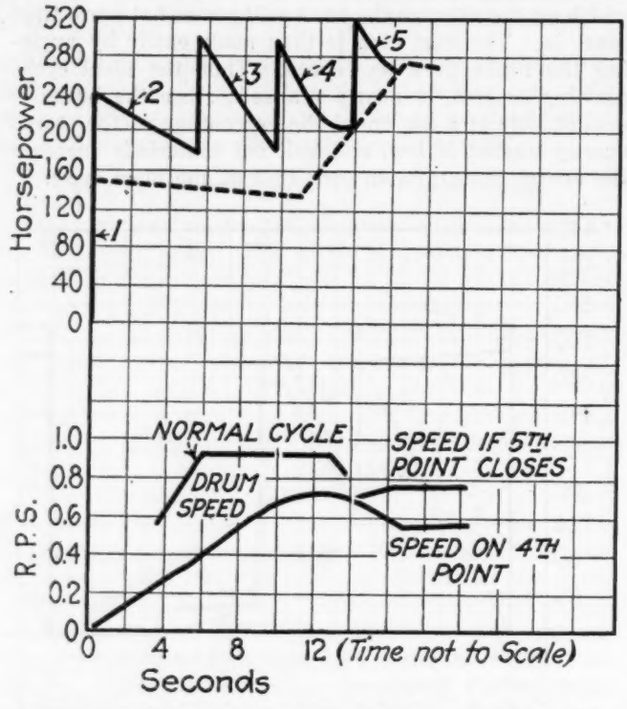


FIG. 7. CURRENT-LIMIT RELAYS SET FAR TOO LOW

These relays cut out at 180 hp., thus maintaining during acceleration an average total effort of 240 hp. While the ropes are winding on cylinders the relay settings do not prevent acceleration but afford an acceleration at one-half the normal rate for the original cycle. However, the ropes are on the respective cones when accelerating on the fourth point and the static effort shown by the dotted line rises rapidly, using up the margin of torque available for acceleration, so that the hoist reaches a uniform speed at 13 sec. This results in loss of time and waste of energy.

IV—PLUGGING TO SHORTEN RETARDATION

If necessary to gain about 1 sec. per trip so as to keep ahead of the cars on the bottom, the method most directly available to the operator is to run later at full speed and "plug" the motor or use the brake to secure rapid retardation. Assuming a uniform rate of retardation in each case, for each second by which this period is shortened the full-speed running time must be increased ½ sec. to cover the required distance, so that the time saved per trip is one-half the time by which the retardation is shortened.

Fig. 4 shows a cycle identical with the original cycle (Fig. 1) except that full speed is held 1 sec. later and the hoist is then brought to rest in 4 sec. The input necessary to develop the required plugging torque is shown in Fig. 4 by line D between 14 and 18 sec.

In plugging, only part of the stored energy of the hoist is utilized in finishing the lift, and the balance is wasted in the resistor. In Fig. 4, the triangle (representing energy) contained between the sloping line F and the zero line from 14 to 18 sec. is wasted in the resistor. Likewise the input while plugging, between line D and the zero line, is wasted, chiefly in the resistor but partly in motor losses.

SUMMARY OF CASE IV

Root mean square = 296 hp. Input per trip = 4,788 hp. sec. = 0.99 kw.hr.
Input is 10 per cent higher than for original cycle.
Time per trip is 1 sec. shorter than for original cycle.
Possible trips per hour are 4 per cent more than for original cycle.

V—HOIST BRAKE USED TO SHORTEN RETARDATION

The same speed-time cycle as in case IV may be obtained by using the hoist brake in place of plugging. In this case the plotted cycle will be the same as that shown in Fig. 4 except that the input, line D, will be zero between 14 and 18 sec. Part of the stored energy of the hoist, shown by the triangle between inclined line F and the zero line from 14 to 18 sec. (which in the plugging cycle was wasted in the resistor) will now be wasted in the brake. This cycle is evidently more economical of power than the corresponding plugging cycle under case IV.

SUMMARY OF CASE V

Root mean square = 292 hp. Input per trip = 4,368 hp. sec. = 0.905 kw.hr.
Input is 1 per cent higher than for original cycle
Time per trip is 1 sec. shorter than for original cycle.
Possible trips per hour are 4 per cent more than for original cycle.

VI—FASTER RATE OF ACCELERATION

If the power system will take the peak it will be possible to save one sec. by a faster acceleration instead of by a faster retardation as in case IV. This will impose a peak of 545 hp. (plus the fluctuations due to contactors closing). Assuming a retardation in 6 sec., as originally, the summary for this case is as follows:

SUMMARY OF CASE VI

Root mean square = 302 hp. Input per trip = 4,177 hp. sec. = 0.87 kw.hr.
Input is 3.4 per cent lower than for original cycle.
Time per trip is 1 sec. shorter than for original cycle.
Possible trips per hour are 4 per cent more than for original cycle.

VII—INCREASED TIME TO ACCELERATE

Fig. 5 shows a cycle like the original cycle except for a slower rate of acceleration, occupying 8.7 sec. and ending at the beginning of the cone. The retardation is

assumed to begin at the same point in the trip as in the original cycle, being accomplished in 6 sec. A condition such as this may result from the operator moving the controller over too slowly, or from too low a setting of current-limit relays. Low voltage has the same effect as too low a setting of this relay.

Observe that the root mean square for case VII is less than for the original cycle. This is by no means always true for an increased time of acceleration. In an installation in which the static effort during the accelerating period is itself considerably greater than the continuous motor capacity the lengthening of the accelerating period will increase the root mean square instead of decreasing it.

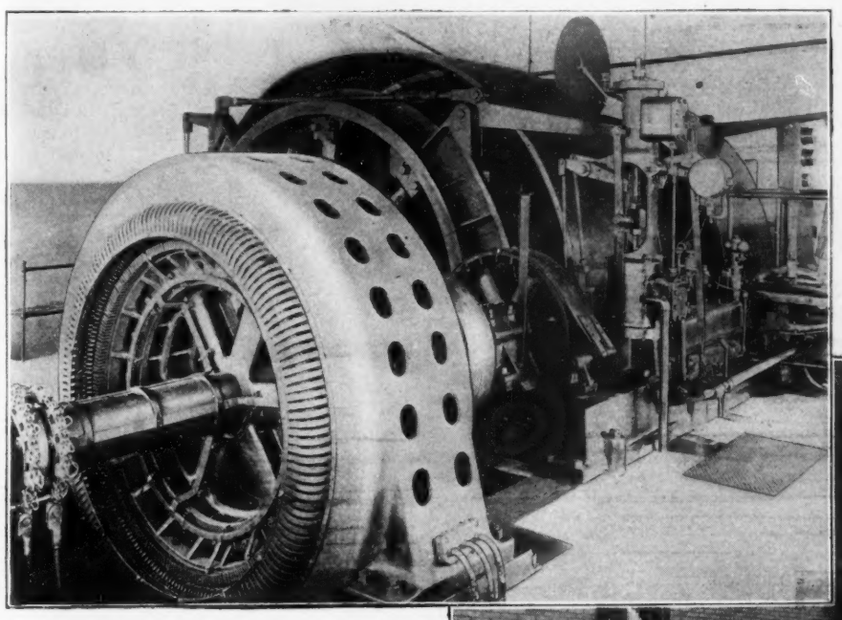


FIG. 8

Lansford Water Hoist

Cylindrical-drum hoist for Lehigh Coal & Navigation Co., at Lansford, Pa., lifting 30,000 lb. of water per trip. Induction motor is 1,200 hp., 300 r.p.m., 25-cycle machine.

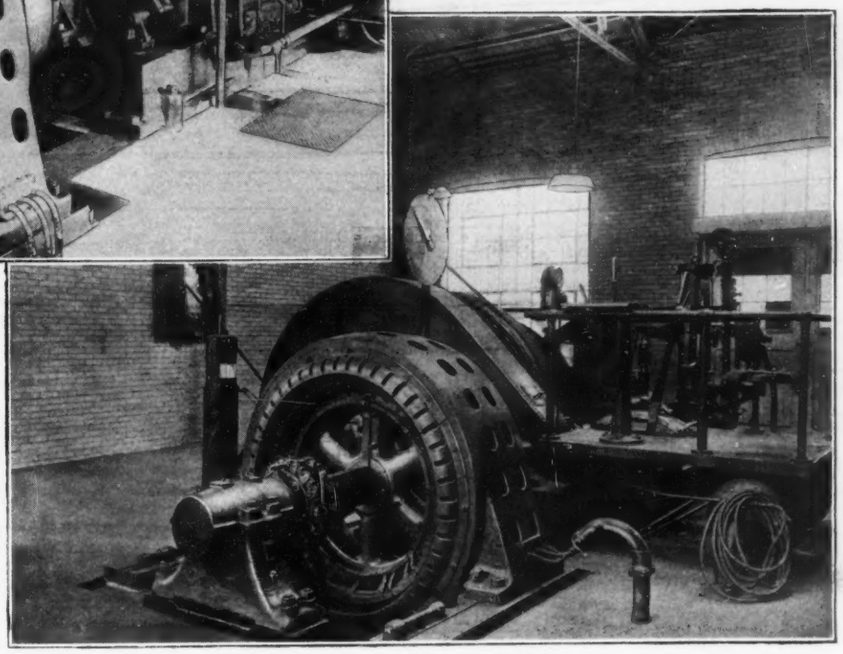


FIG. 9

Russelton Coal Hofst

Built for Republic Collieries Co., Russelton, Pa., to lift 6,000 lb. of coal per trip, 540 tons per hour, lift being 290 ft. Has cylindro-conical drum and 700-hp., 400-r.p.m. induction mtor.

SUMMARY FOR CASE VII

Root mean square = 275 hp. Input per trip = 4,535 hp. sec. = 0.94 kw.hr.
Input is 4.8 per cent higher than for original cycle.
Time per trip is 1.3 sec. longer than for original cycle.
Possible trips per hour are 5 per cent less than for original cycle.

In a hoist installation of a given design an increased time of acceleration always increases the consumption of energy. This will be evident from the following: The work during acceleration consists of two elements, one of which—the acceleration of the mass—is (generally speaking) a constant quantity and is accomplished at one-half the full-speed efficiency of the motor—i. e., at approximately 45 per cent electrical efficiency averaged throughout the acceleration. The other element, the hoisting of the load against gravity during the accelerating period, is likewise accomplished at an average electrical efficiency of about 45 per cent, but the distance hoisted at this low average electrical efficiency increases with an increase in the time of acceleration.

It follows therefore that for the lowest conceivable energy consumption per trip the acceleration period should be reduced to practically zero. In any ordinary case this would increase the momentary accelerating peak so greatly as to require an excessively large motor to develop the accelerating torque, and would place a prohibitive load on the transmission line. A further limitation is imposed by the necessity of keeping shocks and stresses on ropes and cages within reason.

VIII—Acceleration Time Far Too Long

Fig. 6 shows a cycle in which the acceleration occupies 14 sec., assumed to be at a constant rate in revolutions per second. Beyond this point the operation is assumed to follow the original cycle. This extremely slow acceleration is entirely unreasonable, but some men, when a hoist is not busy, may operate in this fashion under the mistaken impression that they are favoring the electrical equipment. The acceleration is not completed until the ascending rope has wound 2.4 times on the cone and the descending rope has unwound 2.4 turns from the other cone. Since the static torque increases (on account of the drum shape) before the resistor is all cut out, this causes an additional element of energy loss.

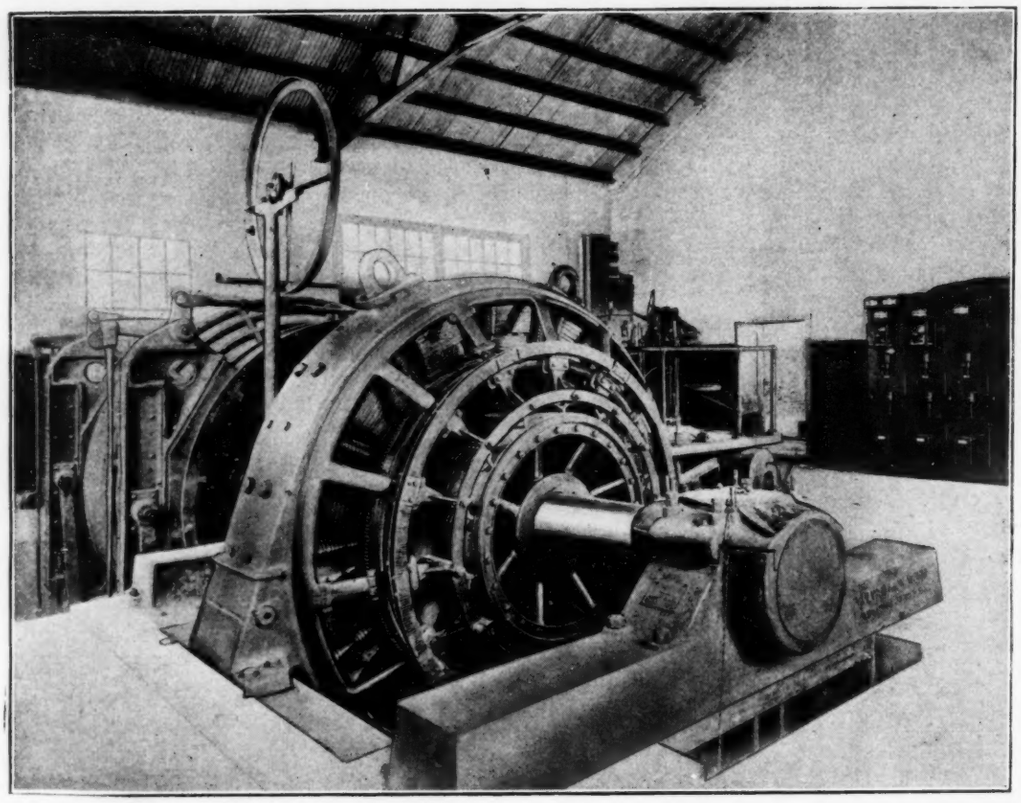


FIG. 10

Shaft Hoist

A 1,400-hp. 90-r.p.m. first-motion direct-current hoist at Shaft No. 86 consolidation coal Co., Fairmont, W. Va. Cylindro-conical drums 8 to 11 ft. in diameter; three feet of slack rope used. Coal brought up each trip, 6,500 lb.; lift, 550 ft.; maximum rope speed, 3,120 ft. per min.; 2½ trips per min.

SUMMARY FOR CASE VIII

Root mean square = 276 hp. Input per trip = 4,950 hp. sec. = 1.02 kw.hr.
Input is 14½ per cent higher than for original cycle.
Time per trip is 3.9 sec. longer than for original cycle.
Possible trips per hour are 14 per cent less than for original cycle.

IX—Current-Limit Relays Set Far Too Low

The case where the current-limit relay is set too low illustrates a condition which cannot ordinarily arise except in a conical or cylindro-conical drum hoist with magnetic control. Fig. 6, discussed under case VIII, shows a cycle whose approximate equivalent might be obtained with a magnetic control if, while the current-limit relays were set high enough, the operator notched up his master controller too slowly, or it might be obtained with a liquid rheostat control which has a time-limit acceleration.

Assume, however, a magnetic control equipment whose current-limit relays are set so low as to cut out at 180 hp., thus maintaining an average total effect of 240 hp. while accelerating. The effect is shown approximately in Fig. 7. While the ropes are winding on the cylinders the relay settings do not prevent the acceleration of the hoist (at about one-half the normal rate for the original cycle). But while accelerating on the fourth point the ropes start up and down their respective cones, so that the static effort (the dotted line) increases. The margin of torque available for acceleration drops so rapidly that the acceleration practically stops at 13 sec.

If the operator lets the hoist run in this manner on the fourth point the further increase of load (due to the cones) will cause the motor to slow down because it is running on resistance, approximately as shown by the lower branch of the speed curve. But a maximum torque push button usually is provided (primarily for other purposes) by which the operator may close the contactor for the fifth point irrespective of the current limit. If the operator uses this push button as soon as the speed becomes constant on the fourth point the effect of the fifth point will be about sufficient to meet the increased load due to drum shape, and beyond the cones the hoist will run at about 80 per cent of normal speed.

The cycle is not shown carried to completion, as the calculations can be made only by the "cut and try" method and are quite laborious. It is evident, however, that the loss of time and the increase in energy consumption are quite appreciable.

Deviations from Original Conditions

Change in rest period.—If the rates of acceleration and retardation are unchanged a variation of time at rest will of course change the number of trips per hour. It will not change appreciably the energy consumption per trip, but will have a slight effect on the motor heating. Following the approximate rule that an induction motor at rest dissipates its heat at only one-quarter of the normal rate, if the rest period in the original cycle, Fig. 1, would be reduced to zero the root mean square would be increased 5 per cent.

Low voltage.—If the reduction in voltage is approximately constant and not extreme, so that it is possible (after changing the current-limit settings) to obtain the requisite accelerating torque and accelerate in the normal time, the efficiency will be only slightly affected and the time of trip will not be affected appreciably. But if the voltage reduction is extreme, or if the relays are not set for the reduced voltage, the time of acceleration will be considerably increased, and efficiency and production will be reduced accordingly. An extreme reduction of voltage will increase the motor heating about as in ordinary application.

Increased mass of system.—If drums or cages are considerably heavier than originally assumed, this may

be met during acceleration by increasing either the time or the horsepower peak, either of which decreases the efficiency; it may be met during retardation either by increasing the time to permit coasting in (thus avoiding further lowering of efficiency) or by plugging or braking, which lessens the efficiency.

The following general principles may be laid down. Some of them are contained in the various illustrative cases, while most of the others are based on an extension of the same reasoning.

As far as practicable the power of the motor (except when plugging) should be used at full speed—i. e., as much of the hoisting work as practicable should be done with the resistor cut out. The ideal cycle has a short period of acceleration (limited by the effect of the peak and the operation of the cages, etc.), while power is cut off at a point from which the trip will just coast to place.

Where it is necessary for any reason to retard at a higher rate than the natural coasting rate, the power required during retardation should be used at as high a speed as is practicable, so as to avoid unnecessary resistor losses and loss of time. Where not unsafe, it is best to coast in and to approach the mark with a little speed to spare, which can be checked with only a slight loss by plugging or braking at the very end of the trip.

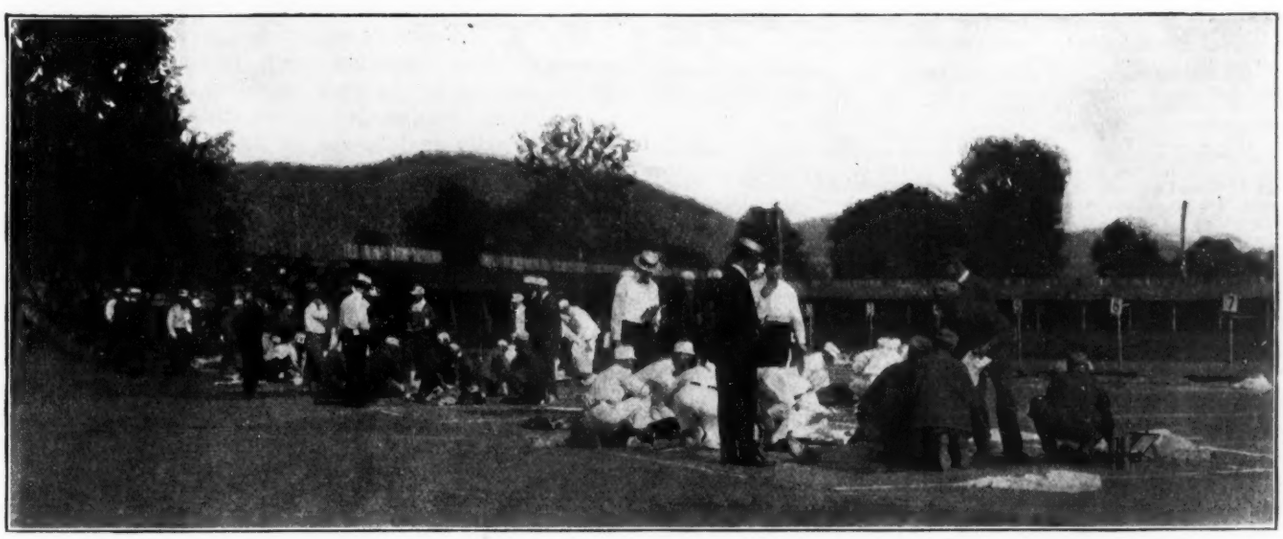
When rapid slowing of the hoist is desired the energy consumption and motor heating are less when this retardation is effected by braking rather than by plugging. With a good electrical equipment and reliable power, plugging is considered more dependable than heavy braking. When a hoist is not busy, the operator should accelerate at the normal rate, coast in as nearly as possible, and take the extra time in longer rest periods. It needs to be impressed on some operators that in handling extra heavy loads or in breaking in a new equipment they are not making it easy for an induction-motor drive by running at partial speed.

The foregoing analysis applies particularly to induction-motor hoists. For the limited class of direct-current hoists which are fed from an ordinary direct-current feeder and controlled by an ordinary armature resistance control, the same considerations apply almost without change.

For the typical direct-current hoist, with its own motor-generator set and Ward-Leonard control, these conclusions apply only in part. Since acceleration and retardation are accomplished by voltage control, not by a resistor in the armature circuit, and since a rapid retardation regenerates energy which is returned to the motor-generator set, considerable variations in the time necessary for starting or coming to rest introduce relatively small variations in actual losses.

West Virginia Holds Initial First-Aid Meet

Winner Is the Team of the Prudence Coal Co.—White Oak Fuel Co. Obtains Second Place—Collins Colliery Co. Leads in Artificial-Respiration Contest —Mine Inspection Active in Planning Meet and Fostering First Aid



FIRST OF A SERIES OF ANNUAL FIRST-AID MEETS TO BE HELD IN WEST VIRGINIA
Eleven teams are competing under the careful inspection of the judges, who are members of the Bureau of Mines and other safety experts. D. J. Parker is their director and Dr. August F. Knoefel, chief judge.

WEST VIRGINIA held a first-aid meet at Charleston on the afternoon of Aug. 28, the State Department of Mines co-operating with the various district coal operators' associations in the promotion of the event. It was one of the most noteworthy affairs that the coal-mining industry of West Virginia has ever celebrated. It is to be the first of a series of such affairs and is to be held annually. The West Virginia Department of Mines, under its new chief, R. M. Lambie, is evincing a keen interest in first-aid activities.

Only eleven teams entered in the state's initial first-aid contest; however, quality rather than quantity was represented by the participants. By company and inter-

Treatment for Burns

Problem 5 being answered by a team of mine workers. Gas has been ignited by an open light and the patient has been burned all over the upper part of his body. His head has been carefully covered by the first-aid team with picric-acid gauze, holes being cut for eyes and nose.

company elimination contests held during July and August the number of teams competing for the state championship was reduced to that number. This fact raised the caliber of the teams finally participating. Of the eleven on the field when the horn sounded for the first problem, one was from the West Virginia Coal & Coke Co., and two were from the operations of the Davis Coal & Coke Co., one each from the mines of the Prudence Coal Co., the White Oak Fuel Co., the Collins Colliery Co., the Harvey Coal & Coke Co., the Hitchman Coal & Coke Co., Rachel mine of the Consumers' Fuel Co., and Gary mines of the United States Coal & Coke Co.

Following an address by Governor Cornwell, five full-team events were contested. These were as follows:

(1) An unconscious man is found lying on his back, over a live electric wire. Rescue and give artificial respiration for one minute. Treat burns on back and upper right arm. Carry 30 ft. on an improvised stretcher.

(2) Treat the broken knee-cap of the right leg of the patient, his dislocated right shoulder, his fractured jaw and a dislocated forefinger on the right hand. Improvise a stretcher and carry the patient 25 ft.

(3) A brakeman is caught between the side of a car and the entry. He sustains the following injuries: The eighth, ninth and tenth ribs on the left side are broken, the back is badly lacerated at the waist line, the left arm has sustained simple fracture, and the flesh has been torn from the back of the right hand. Treat and carry 50 ft.

(4) Compound fracture of middle left thigh with profuse arterial hemorrhage; compound fracture of right forearm; cut from outer corner of right eye to top of right ear, with bleeding. Treat.

(5) Miner ignites gas with open light and receives burns of entire body above waist line; this includes head, face, neck, upper extremities, chest and back. He is unconscious and there is evidence of shock. Treat.

The directors of the meet were: J. W. Paul, chief mining engineer of the U. S. Bureau of Mines, and R. M. Lambie. Dr. August F. Knoefel, Terre Haute, Ind., surgeon, and one of the foremost authorities in the country on first-aid methods, was chief judge. The judges were drawn from officials of the Bureau of Mines, being headed by D. J. Parker, chief safety engineer, and from men of the Mine Safety Appliances Co. Field men were composed of state operators and A. C. Callen, professor of mining engineering at West Virginia University, was chief recorder.

The team representing the Prudence Coal Co. emerged from the final problem with a percentage of 97.4 and won first place. This team was captained by R. B. Overton and was composed of the following men: James Martin, Walter McVey, William Cheek and Silas Hall with Jesse N. Ames, patient. Second place was captured by the team from the Scarbro mine of the White Oak Fuel Co., showing a final percentage of 96.3. Members of the White Oak team were: Lewis Roncaglione, captain; Andy Vargo, Fred Lamb, Adam Bomdzo, Charles Sablosky and Walter Miller.

In a special artificial respiration contest, which was held on the heels of the first-aid demonstration, the team from the Collins Colliery Co. proved itself most adept. The same team also had the best captain, the judges decided in a feature contest. A team from the Davis Coal & Coke Co. had the second best captain. Following the working off of ties for third and fourth places an exhibition in mine-rescue work was given by the state department team in a burlap-constructed gallery filled with formaldehyde fumes.

Prof. A. C. Callen presented the prizes to the various winners. The Prudence team received a check for $1,100 donated by the state operators associations and a silver loving cup awarded by the state. The same team received individual prizes in the shape of gold and enamel watch fobs donated by *Coal Age*. The team winning second place was made the recipient of six baby Wolf safety lamps, awarded by the Mine Safety Appliances Co., and six ten-dollar gold pieces. As a result of the generosity of various manufacturing interests there were prizes for all contestants.

In the evening the West Virginia Mine Inspectors' Association was host to a number of prominent mining men at a banquet in the Ruffner Hotel, approximately seventy-five being present. V. E. Sullivan, president of the association, made the address of welcome. The proceedings were then turned over to J. W. Paul, who organized the West Virginia Mine Department as a state activity and was its first director. Mr. Paul called on the following speakers for five-minute talks: Prof. A. C. Callen; J. T. Ryan, general manager of the Mine Safety Appliances Co.; Dr. August F. Knoefel; D. J. Parker; D. J. Baker, of the editorial staff of *Coal Age;* John I. Absolom, general manager of the Sewell Valley Coal Co.; Lawson Blenkinsopp, chief mine inspector of Kentucky; Carl Scholz, general manager of the Raleigh-Wyoming Coal Co.; Lee Ott, state compensation commissioner; R. P. Maloney, general manager of the Davis Coal & Coke Co., and R. M. Lambie.

Discussion by Readers

Edited by
James T. Beard

Piecework on a Contract Basis Stimulates Production

ALTHOUGH piecework is uncommon in coal mining I am of the firm opinion that it could be employed with great advantage on a contract basis similar to that described by M. L. O'Neale, *Coal Age*, Aug. 12, pg. 348, which has interested me greatly. My idea is that the form of payment should be such as to insure a good wage for a fair day's work.

Such a method not only insures a maximum production by stimulating the activity of the worker but stabilizes the market value of the product. The results obtained are therefore the best possible for both the producer and the consumer. The worker is practically his own master, shows a greater interest in the work and develops more pep than is possible when working for a stipulated wage. He knows that his earnings depend on the amount he can produce and he naturally does his best.

No one will deny that the amount of energy put into a man's work and the interest he takes in its performance are the two factors that determine his success. At present there are at least two classes of work in the mine that may be termed "piecework." Most of the coal is undercut on this basis and loaders are paid by the ton for the coal they load. As a result, these two classes of workers are the most independent among mine employees.

Co-operative Mines in Indiana

The contract system described by Mr. O'Neale is somewhat similar to what is termed, in Indiana, "Co-operative Mines" of which there are quite a few. The men working such mines are shareholders and as such are interested in the successful operation of the mine. By this plan I understand that good miners often make over $200, each pay, besides taking extra work by loading their own coal. There are, moreover, other advantages in the co-operative plan as it insures a more complete extraction of the coal and the conservation of this natural supply that is of prime importance today.

Mines that were shut down prior to the year 1914, being considered unprofitable, have since been reopened and are being worked on a co-operative basis. If I am rightly informed there is such a mine, in Dugger, Ind., where the shareholders are making good wages and are content. They have shown deep interest in the operation and boast of the fact that they have not had a fatal accident since they started the undertaking. I am told that they pay their daymen the desired wage of $8 a day. It is a union mine, the shareholders being members of the U. M. W. A. and they employ only union men.

My chief purpose in writing is to illustrate the fact that better results are obtained whenever work is based on the principle that a man's earnings are determined by the amount he produces. In other words, the greater the production the greater the award to the producer (employee). It goes without saying, however, that such a system must be safe and sound. It must afford a maximum amount of stability to the industry, and care must be taken to avoid undermining methods.

Speaking of the miners' union, it has been my misfortune when holding a union card and having to earn a living for myself and family, to feel that my work (such as I desire) must always be subject to the adjudication of the union. I regret to say that it has been my lot to go without butter on my bread for myself and family while acting as a committeeman for the union and living up to the dictates of my conscience. Again, the organization has taken money from my statement fraudulently and, on appeal, has allowed perjured evidence to sustain their act. I have wondered if such work is sanctioned by the order. W. H. Luxton.

Linton, Ind.

Men Make the Mine

SPEAKING of maintaining a steady output of coal by a proper distribution of the men in a mine, let me say that it is my experience that no rule or method can be laid down that will solve the question for every mine. Each mine has its own peculiarities and the same is true of the men working in the mine.

Some men are born miners; they have a regular method of going about their work; they are never in a hurry; their place is always clean, well timbered and they always have coal ready to load when their cars are placed. It is a pleasure for the coal-cutter to cut their places, as the face is clear, the track well laid and the coal squared up, so that there is nothing to hinder the progress of the machine. It is likewise a pleasure for the mine foreman or one of his assistants to enter such a place. He can find no fault and with a few cheery words passes on thinking how well it would be if all men were alike efficient.

Miners Who Work Hard But Accomplish Little

Contrast the foregoing with another class of miners who are always in a hurry. In preparing to blast the coal, they do not take time to ascertain the best place to drill their holes. These are either too deep or too shallow or they are drilled too tight on the rib. The same lack of care is had in charging the hole and tamping and firing the shot. As a result, there is often a misfire; the coal is badly shattered and much fine coal and dust is trampled under foot and lost, to say nothing of the increased danger owing to such work. Much trouble is caused by the machine and cars constantly getting off the track, which has been poorly laid. This class of men generally work hard, but accomplish less than if they had more system in performing their work.

Again, there is always a class of miners who are given to laying off two or three days after payday, spending their time idling and drinking where drink can be found. When they do show up at the mine, they are often unfit for work. As a rule they want the best places in the mine and grumble at everything that goes wrong. They are always asking for allowances and are prone to find fault with their statements.

Another equally poor class of miners is made up of men who are lazy. These are best satisfied when the cars come slow and they can idle away their time in the mine. Such a one will gladly trade three empty cars for a single loaded one, though he is prone to boast of how much coal he can load when the cars are on hand. Each of these classes of miners is typical. The men described are to be found in every mine. Take them as a whole, miners are good, bad and indifferent and it would be an impossibility to find a heading with 15 or 20 men possessing equal capabilities.

A MINE IS KNOWN BY CLASS OF MEN EMPLOYED.

The class of men employed make a mine what it is and give it a character that becomes well known and demonstrates the ability of the foreman in charge to select and deal with his men. My experience is that it is impracticable to attempt to sort out men, as has been suggested. It is far better to concentrate the work by placing such a number of men in one section or heading as will insure a full trip, but adding three or four extra ones to allow for some of them not being able to load their turn. I remember working in a mine in the old country, however, where a certain section was set aside for the old and unable men. It was called the "old man's flat" and the idea appeared to work satisfactorily.

In closing, I will mention one important point in maintaining a uniform output of coal. In a large mine where there is a motorboss it will always be an advantage if the assistant in charge of each several section will confer with the motorboss every night or morning, telling him how many men there are in his section and the number of cars that will be needed. Good motormen soon find who are the best loaders and know where to place any extra cars they may have. The proper distribution of cars is a big man's job, as it is constantly changing and requires careful study and observation to secure the best results. Any contemplated change in the mine should first be taken up with the motorboss so that he can place the cars where they will be most needed and arrange the order of trips so as to keep the coal coming to the tipple regularly.

McIntyre, Pa. THOMAS HOGARTH.

Where Center Posts Serve Better than Double Timbering

SOME time ago I was attending an examination for mine foremen. Two of the questions asked struck me with interest. They were the following: "How would you timber an airway having a good roof and good floor?" "How would you timber an airway having a bad roof and bad floor?"

To the majority of the men present in that examination, I presumed these questions would appear simple enough; but in actual practice a good miner knows that there is no hard-and-fast rule. His judgment must be his best guide.

A short time after this I was timbering an airway where the floor was of a very hard sandstone and the roof a hard, sound shale. The airway was 3,000 ft. in length, straight and free from any trouble, except towards the face where it had caved for a distance of 50 yd. so badly that no attempt had been made to clean up the fall.

This airway had been timbered with crossbars or booms resting on two legs. In that part of the entry where the fall had taken place the pressure had, for the most part, come on the center of the crossbars and broken them down. The frames had been set 2 ft. 9 in. apart, and a large amount of timber had been used.

In turning over the matter in my mind, I decided that if the same timber had been used for center posts with good cap-pieces over each post there would have been less danger and the timber would have been used to better advantage, as it would have given a stronger support where the pressure was most felt. My thought is that an airway should be supported in the most practical manner, regardless of the appearance of the timbers.

At another time, I worked in a room 10 ft. wide and where the coal was 7 ft. thick. The roof was a good hard shale, as was proved when the pillars were drawn and it was difficult to get a good fall to relieve the weight on the entry pillars. Notwithstanding these conditions we were instructed to use double timbers consisting of a boom 10 ft. long resting on two legs, one at each end.

I often thought that this was a great waste of timber, where little support was needed save an occasional post set near the center of the place. Indeed, almost the entire expense of timbering the place could have been saved. But let me say in conclusion, what every good miner knows, there are roofs that require booms and there are roofs where these are an unnecessary expense.

———, Nova Scotia. MAC.

The Trolley-Wire Menance

SPEAKING of dangers in coal mining, attention has recently been called in these columns to the need of safeguarding the trolley-wire on mine haulage roads, in two letters, one by John Buggy, *Coal Age*, July 22, p. 176, and the other by W. H. Noone, p. 178. Both of these writers have referred to the danger of the trolley wheel jumping the wire and causing a serious accident by tearing down the guardboard put up to protect men from accidental contact with the wire.

This is a matter that most of our mining laws do not touch, while others fail to define clearly how trolley wires should be hung and guarded. It goes without saying that an exposed trolley wire or any other conductor of electricity is a menace in the mine, unless proper precautions are taken to prevent persons coming inadvertently in contact with the wire. Indeed, many accidents can be attributed to the slipshod manner in which electrical conductors are often hung.

While the difficulties of installing electrical wires on the surface are less than those in the mine, it would appear that greater care is exercised to insure the safety of the public than is taken to safeguard the miner underground. Drivers, motormen, timbermen, trackmen and others who are accustomed to working on the roads and air-courses realize the danger of coming in contact with live wires. But the miner who works in the face and is compelled to travel to and from his work has not the

same consciousness of this danger, and contact is often made with a live wire by the tools or powder can he carries.

To erect guardboards the entire length of a trolley line would be a needless expense and impracticable. For this reason, the safety of miners can only be insured by providing a separate traveling way for their use in going to and from their work. At the shaft bottom where a greater headroom is available, the trolley wire should be hung high or properly guarded. In South Wales a separate traveling way is always provided. The same is true in our anthracite mines opened by a slope or drift.

Where the Men Must Travel Haulage Roads Use Every Means To Make Them Safe

While these openings are intended to keep men off the haulage roads and give them a safe means of reaching their work, the extra road is often found convenient for transporting supplies and taking mules into and out of the mine. In mines where the conditions are such that a separate traveling way cannot be provided, the haulage road should be wide enough to afford a good clearance of three or four feet, on the opposite side of the road from the trolley wire.

The suggestion made by Mr. Noone of hanging the guardboards on hinges appeals to me as a good one; but I am afraid that, unless the hinges are riveted to the board, half of them would be missing in the morning and the guardboards taken down. It is my experience that, at crossovers and on shaft bottoms where guardboards are required, a single board protecting the wire hung close to the rib gives better results than where the wire is hung nearer the center of the track and two boards are used.

The jumping of the trolley wheel from the wire and the damage resulting thereby is a common complaint and is due chiefly to a wornout wheel or a misplaced hanger. Of course, it is important to hang the guardboards as uniformly in line as possible. This is a simple matter where the trolley wire is a straight line; but in any event, the ends of the boards should not protrude so as to catch the harp of the wheel.

Pittston, Pa. MOTORMAN.

Mechanical Equipment the Solution

INTRODUCING mechanical equipment in coal mining has proved the actual solution of the growing difficulties of the industry. As is clearly shown in the letter of W. H. Noone, *Coal Age*, Aug. 5, p. 294, the idea has not been to reduce the number of men required, or to lower the standard of their wages. The real purpose is to supply the only means possible to lighten the labor of getting out the ever-increasing amount of coal needed. Long since it became clear that this amount could not be produced by the pick-and-shovel method of mining and then hauling the coal from the mine with mules.

Instead of miners expressing a sentiment opposed to the introduction of coal-cutting machinery and other forms of mechanical equipment, their cry should be: Out with the picks and shovels and give us mechanical loaders. Replace the mine mules with motor haulage that will be able to handle all the coal we can load. Some of us well remember the time when we used to drive a three-mule team on a haul a mile long in the mine and, in order to keep the coal moving, were compelled to stay in the mine ten or twelve hours a day.

Miners should indeed be glad that employers are willing to lend their efforts to expedite the work and make the men's tasks less laborious. Today the electric locomotive hauls out of the mine, in a single trip, as many cars as a mule would haul in an entire shift. The work of a motorman and brakeman today, as compared with that of a driver and runner of yesterday, is like taking a holiday. Yet, these changes have brought no decrease in the number of men or the wages paid them.

Speaking of coal-cutting machines, the only objection that can be offered to their use is the dust they create in operation. I have often wondered why some means cannot be designed that would take care of this dust. It would go a long way toward overcoming the objection to their use. It is true that coal cutting with machines has not proved altogether a success in the anthracite region; but this has been owing to the pitch of the coal often being such as to make the machines difficult to handle.

In loading coal, particularly in thin seams that would average three feet in thickness, good results have been accomplished in the use of the scraper system designed by Cadwallader Evans and described in *Coal Age*, Vol. 14, p. 92, 371 and 611. I have seen this loader in operation in a three-foot seam pitching 8 deg., where it was operated with good results for distances of from 300 to 600 ft. The coal was cut by a Morgan-Gardner chain cutter; but it was difficult to hold the men owing to the dust made by the coal cutter.

Proper Use of Powder Is Even More Important Than Merchanical Equipment

The best of the coal in the anthracite region is fast being mined out, and production now depends largely on the mining of coal from three to five feet in thickness, which requires greater skill on the part of the men working at the face. What is needed is the use of powder that is adapted to shooting the coal, which is of varying hardness. It is shameful to see the amount of coal that is blown to pieces through the excessive use of powder that is often ill-adapted to the quality of the coal. For the most part, at present, the miners are permitted to use whatever kind of powder they please and little is done to improve the situation in this respect.

In view of the agreement with the men that the cost of supplies shall remain the same, there is little inclination on the part of operators to demand of the manufacturers that they furnish a better grade of powder than what is often dumped into our magazines. It would seem that the only answer to the question, "How is the production of coal to be maintained," is, By the introduction of mechanical equipment that will reduce the labor of mining and hauling the coal. At the same time, it is important to teach the men to be more skillful in the performance of their work.

It has been suggested that the men will claim their inability to load more coal is owing to the shortage of cars; and it must be admitted that there is much truth in that argument. Another statement is made that men are frequently held in the mine all day to load one or two cars when they could load five or six if they had them. It is certainly high time that something should be done to provide a more adequate supply of cars at the working face. This would result in greater satisfaction on the part of the men and help to maintain a more uniform output of coal in mines.

Plains, Pa. RICHARD BOWEN.

Inquiries of General Interest

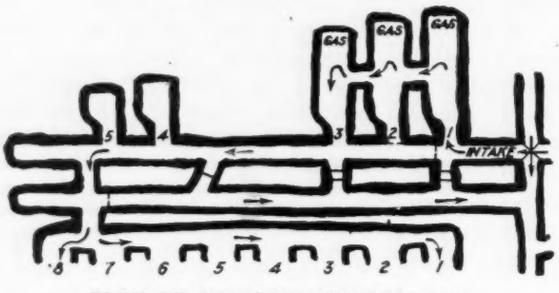
Answered by

James T. Beard

Finding Gas on Intake of an Air Split Working Fifteen Men

BEING up against a condition in our mines, I have a proposition to present to the practical readers of *Coal Age*, asking their opinion in respect to what procedure they would abvise. It represents an actual condition that came under my observation in the operation of a mine in this state. Let no one suppose that the matter is taken from a book. It is as follows:

In making his rounds in the morning, a fireboss came to an entry where seven men were at work in the five rooms and the two headings shown in my sketch. Be-



PLAN OF AIR SPLIT SHOWING GAS

sides these seven men, who were practically all working on the intake of that air split, there were eight other men at work on the same split in another section of the mine not fully shown in the sketch. As I have indicated, the fireboss found gas filling the faces of the first three rooms on the intake.

The question I want to ask is: What should have been his method of proceeding, and should he have permitted any of the fifteen men working on this air split, to have proceeded to their work? Also, how should the gas be cleared from the three rooms so that all the places will be made safe for work? J. M. NICHOLS.

Denning, Ark.

The fireboss having found a considerable accumulation of gas at the face of each of the first three rooms on the intake of this air split, he should have withdrawn and placed suitable danger signals at the mouth of each entrance to that section of the mine. He should then finish making his examination of any other portion of the mine in his charge and enter a full report of the same in the book kept for that purpose, specifying where danger of any nature has been found.

Having done this, the fireboss should take from the board at the mine entrance the checks of the fifteen men working on the air split found to contain gas. He should give these checks to the mine foreman, whose duty it would then be to prevent these men from entering the mine and proceeding to work. The section of the mine in question must now receive the immediate attention of the foreman, who must make sure that no one enters the place, until the fireboss and one or two competent helpers can clear away the gas.

Assuming that the seam lies fairly level, it may be necessary to erect brattices to deflect the air current in stronger volume against the face of each room, starting with the first. The brattice should start from the outby corner of the breakthrough between the first two rooms and be extended gradually to the face of Room No. 1, in such a manner that it will sweep the entire face of the coal. Safety lamps should be used exclusively in this work. Having cleared the gas from the face of No. 1 room, the same process must be continued in Room No. 2, and then in Room No. 3, until all the gas has been removed.

If it has been possible to examine Rooms No. 4 and No. 5, nearer the face of this entry, before disturbing the gas in the first three rooms mentioned, it would be well to hang a canvas so as to prevent the air from passing into rooms Nos. 4 and 5 or to the head of that entry. The gas should be conducted in as direct a manner as possible to the main return airway. When the work of removing the gas has been completed each working face and passageway on this air split must be carefully examined and pronounced safe before the men are permitted to enter for work.

Instructions to a Miner

KINDLY state what instructions should be given to a miner who is to work in a mine generating some gas but where open lights are used. What is necessary for the miner to observe in respect to his laborer, and what is required before and after firing his shots.

————, Ind. SAFETY INSPECTOR.

Instruct each miner to examine his working place in the morning before he starts to work. Until that is done he must not allow his laborer to approach the place. He must examine carefully the condition of the roof and coal to see that no timbers have been discharged by the blast fired in the place, and where loose coal or roof is found he must see that this is pulled down or made secure before starting to work.

In blasting coal miners should not be permitted to fire their own shots. This should be done by competent shotfirers after the men have left the mine. However, where shotfiring is performed by the miners they should only be permitted to fire after the mine foreman has been notified and he or his assistant has examined the place and given permission for firing. The miner should be instructed to examine his place for gas before starting to work in the morning. After a shot had been fired in his place the miner should examine to see that no gas feeder has been ignited. He should be instructed, also, to see that the brattice is kept up and the air current is sweeping the face of the coal. He should be told to load out his fine coal and dust, which must not be thrown back into the waste. Should it happen that a gas feeder has been ignited, which he is unable to extinguish, he must notify the mine foreman or his assistant at once.

Examination Questions

Answered by

James T. Beard

Mine Foremen's Examination Held at Pittston, Pa., May 4, 1920

(Selected Questions)

Ques.—If a water gage placed in a door 6 x 8 ft. shows a reading of 2 in., what is the total pressure on the door?

Ans.—In this case, the unit pressure is $2 \times 5.2 = 10.4$ lb. per sq. ft. The area of the door being $6 \times 8 = 48$ sq. ft., the total pressure on the door is $10.4 \times 48 = 499.2$, say 500 lb.

Ques.—What safety appliances should be kept and maintained in proper working order, at the surface and at every shaft landing where persons are being lowered and hoisted from the mine?

Ans.—At the head of every shaft and on each landing, there should be maintained safety blocks, to prevent cars from being run into the shaft by accident. On the surface, there should also be a derailing switch that will deflect a car to one side of the shaft, except at times when it is desired to take needed supplies into the mines. At all landings there should be provided and maintained in good working order safety gates, which are raised and lowered automatically by the movement of the cage in the shaft. At all underground landings, there should be provided, a good light.

Ques.—How many apertures to a linear inch and how many to a square inch in the gauze of a properly constructed safety lamp?

Ans.—The standard wire gauze used in this country and Great Britain consists of a mesh of twenty-eight wires to the inch, which provides $28 \times 28 = 784$ openings per square inch.

Ques.—What do the symbols CO_2 and CH_4 indicate? Where would you expect to find each of these gases and how would you discover them?

Ans.—The symbol CO_2 stands for carbon dioxide, and the symbol CH_4 for methane, or marsh gas. Carbon dioxide, being heavier than air (sp.gr. 1.529) may be generally expected to be found at the floor and in the lower portions of mines that are poorly ventilated; also in abandoned sections where the air current is deficient. It accumulates at the face of dip workings and in swamps or other low portions of the mine.

On the other hand, methane or marsh gas being lighter than air (sp.gr. 0.559) is usually to be found at the roof, or at the face of steep pitches and other rise workings, in mines generating this gas. In the working of a gaseous seam, there is generally an accumulation of gas to be found at the face of advanced headings and other live workings where the air current is not properly conducted so as to sweep the face clear of this gas.

The presence of carbon dioxide is generally observed by the dim burning or complete extinction of the lamp, and by its effect on the system, producing headache and nausea. Methane is discovered by the flame cap observed on the flame of a safety lamp, the height of the cap varying with the percentage of gas.

Ques.—What duty does the mine law impose on the owner, operator, or superintendent of a mine relative to props and timber.

Ans.—The Anthracite Mine Law requires the owner, operator, superintendent or mine foreman of a mine to furnish to the miners all props and timbers necessary for the safe mining of the coal and protection of the workmen. Such props and timbers must be properly prepared and delivered to the workmen as near to the working face as they can be carried in cars. (Art. 11, Sec. 1.) The law further requires (Art. 12, Rule 12) the mine foreman or his assistant to examine every working place at least once each alternate day to see that it is properly secured with props or timber and that all loose rock or coal is taken down or made secure. Rule 13 requires the mine foreman or other competent person to examine the timbering in all slopes, shafts, main roads, and travelingways, and see that they are in safe condition. Rule 55 forbids the cutting of any prop or timber that is in position supporting the roof or sides. When necessary such posts or timbers must be removed by blasting.

Ques.—How should an injured person be cared for in the mines? What are the duties of the mine foreman in this matter?

Ans.—When a person is injured first-aid workers should give prompt attention to the man, examine to see how badly he may be hurt and send for a doctor if that is necessary. If the wound is bleeding freely, the first-aider must stop the flow of blood by applying the usual means for that purpose. If bones are broken he must place the injured limb in as comfortable a position as possible, handling it with care to prevent any unnecessary laceration of the flesh by the broken portion of the bone. If practicable he should apply the necessary splints and remove the injured person to a place where he can have better air, using every precaution to prevent collapse resulting from the shock.

The mine foreman must examine the place of the accident, ascertain its cause, examine any witnesses and make a full report of the occurrence to the inspector of the district. This must be done without delay, following the accident.

Ques.—Explain the safest and most effective way of circulating the air current through a mine.

Ans.—The first essential in the circulation of air in a mine is the continuous operation of a type and size of fan that is capable of supplying the required quantity of air in the mine in question. The circulating system throughout the mine should be such as to provide a separate air split for each section where not more than seventy-five men must be employed, in order to comply with that requirement of the anthracite law. Each air split must be conducted to the face of each working place in that section, by means of the necessary air bridges, doors, stoppings and brattices, so that the air shall sweep the face of the coal in each place and prevent the accumulation of gas. By this means the ventilation of the mine is made most effectual.

Achievement in Price Determination by a Consulting Economist*

Announcing That Anthracite Price Should Be Reduced Because of Commission Award Lauck Continues Issuance of Interesting but Unconfirmed Statistics—Report of $15,000,000 "Clean-up" by Operators Disproved by Trade Commission Report

THE "consulting economist" dies hard. It would naturally be supposed that an advocate or expert who had been so completely discredited as was W. Jett Lauck before the Anthracite Commission would have kept quiet. Not so Lauck, who, true to his nature, "rushes in where angels fear to tread." Hardly was the ink of the President's signature dry on the letter in which he accepted the majority report of the commission than Lauck was out in a statement—mimeographed, ready for the press—in which he presented his views and indulged in some additional perversion of the facts. A considerable portion of this "interview" was given publicity by the newspapers on the mailing list of the Bureau of Applied Economics, and Lauck himself given a few more hundred dollars' worth of gratuitous advertising.

Misses a Fact by About Six Weeks

Replies to a few of the misstatements and comments made by Lauck will suffice to show the utter disregard he has for the truth when pleading his cause or when seeking additional notoriety. In the first place, he announces that "the price of anthracite to the consumer should be reduced as a result of the award of the Anthracite Coal Commission. *Let there be no mistake, no misrepresentation, about that.*" He then states that when the case was submitted to arbitration, with an agreement that the wage award would be retroactive to April 1, the anthracite operators advanced the price of coal $1 a ton, effective April 1. The statement is false. No general advance in price was made in April. The first advance was made about the middle of May and the advances made were based on close estimates of what the increased labor cost would be, figured on the advance in wages offered by the operators and rejected by the miners.

Deductions from Home-Brewed Statistics

Lauck says that the increased labor cost provided by the commission's award was barely 50c. a ton, and that the advance in price netted the operators 50c. a ton, by which a "clean-up" of $15,000,000 had been realized during the four months of negotiations—another deliberate falsehood. The report of the Federal Trade Commission, June, 1919, shows that the labor cost of producing fresh-mined coal in November and December, 1918—after the wage increase granted in November—was $3.41 a ton. There has been no decrease in the wage scale and, consequently, in the labor cost since that date, though Lauck says, without any warrant or authority therefor, that available figures on the labor cost of anthracite production range from $2.71 to $3.10 per ton. No such figures are available, since no report on the cost of anthracite has been made since the one made by the Federal Trade Commission in June, 1919.

Gives Only One Source of Increased Cost

Applying to the labor cost of $3.41 per ton the 17 per cent increase awarded by the commission, an addition of 58c. per ton is made to the labor cost of production of *all sizes of anthracite produced.* The increased cost, however, cannot be spread over the entire production, but has to be borne by the prepared or domestic sizes, and as these constitute about 70 per cent of the total, the added cost to that portion of the product is 83c. a ton. But labor is not the only factor entering into the increased cost of production. The cost of timber for props and of all kinds of supplies has increased in even greater proportion than has the cost of labor, so that as compared with November and December, 1918, the total cost of domestic coal has increased considerably more than $1 per ton. The charge that the anthracite operators have "soaked away" $15,000,000 is pure figment on the part of W. Jett Lauck.

Lauck's tergiversation are no more clearly exemplified than in his careful avoidance of reference to, and drawing of conclusions from, the investigations conducted by the U. S. Fuel Administration and the report of the Federal Trade Commission. The latter cannot be charged with exhibiting any undue partiality to the anthracite industry or to other large interests, the conduct of whose affairs has been the subject of its investigations.

A Difference Between "Margin" and Profit

Its report for June, 1919, already referred to, shows that the operators' margin on fresh-mined coal in the last two months of 1918, after the wage increase of November was in effect, was 36c. a ton, which was less than half of what it had been during the year 1917. And, as distinctly stated in the report, the term "margin" must not be translated into "profits," as the costs shown by the Federal Trade Commission are not intended to and do not include reserves for non-insurable hazards, selling expenses, interest on investment or borrowed capital, or Federal taxes. The sum of these items probably would amount to as much as 20c. so that the amount per ton applicable to the payment of dividends could not be much in excess of 15c., or, say, about 3c. on the dollar turnover. The trouble that developed in the anthracite region in the form of "vacations" in protest against the award of the Anthracite Coal Commission was unquestionably due in large part to propaganda engineered by Lauck. To him and to his organization is the public indebted for any inconvenience it may experience through shortage of

*This is the fourth and last of a series of articles on the consulting economist in wage controversies. The third appeared in *Coal Age*, Sept. 16, page 601.

anthracite that has followed as a result of the mine-workers' vacations. He has posed before the public as the friend and advocate of the anthracite-mine workers, but for his services and those of his organization the miners were assessed in the sum of about $40,000, which netted them absolutely nothing—in fact, worse than nothing, for it is highly probable that but for the injection of Mr. Lauck and his theories into the controversy the wage conference would have come to an agreement months before; there would have been no need for a Presidential commission; the men would not have waited six months for their back pay, and there would have been no concerted action in the taking of vacations. Lauck in his valedictory says "No one should be fooled, or be a fool in this situation." He should take his own advice.

Estimate of Coal in the Hands of Consumers

Bituminous Stocks Held by Commercial Plants in the United States June 1, 1920, Calculated at 20,000,000 Tons—Decrease of 4,000,000 Tons, or 17 Per Cent, Between March 1 and June 1

COMMERCIAL stocks of bituminous coal in the United States on June 1, 1920, according to F. G. Tryon, of the U. S. Geological Survey, are estimated at 20,000,000 net tons. This was considerably less than the stocks carried on Oct. 1 of the years 1916 and 1917 and was very much less than the stocks accumulated at the close of 1918. In the three months from March 1 to June 1, 1920, stocks decreased 4,000,000 tons, or 17 per cent.

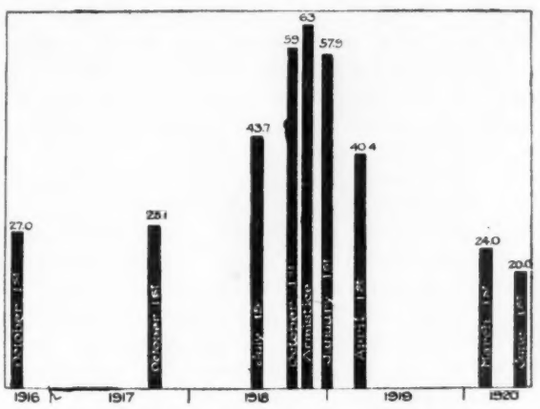


FIG. 1. COMMERCIAL STOCKS OF BITUMINOUS COAL OCT. 1, 1916, TO JUNE 1, 1920

Figures represent millions of net tons and include coal in hands of railroads, industrial consumers, public utilities and retailers. Coal for steamship fuel, on Lake docks, and in transit is not included.

Rail, Industrial, Utility and Dealers' Fuel

These figures are estimates which attempt to account for coal in the hands of railroads, industrial consumers, public utilities and retail dealers. They do not include coal in the cellars of domestic consumers, coal in stock for steamship fuel, or coal in transit. The stocks on the Lake docks are not included, because they are properly to be regarded as coal in transit and because naturally they vary greatly from winter to summer.

Information available concerning stocks of coal in the past is summarized in the following table:

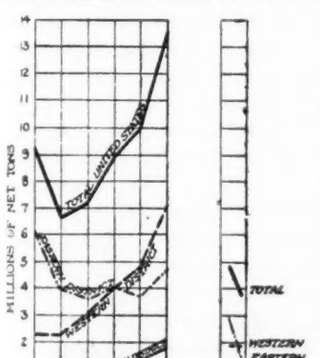


FIG. 2

Coal Held by Railroads July 1, 1916, to June, 1920

Although the figures for 1920 are not exactly comparable with earlier years, they show that stocks were lower in the first half of 1920 than at any other time for which records are available.

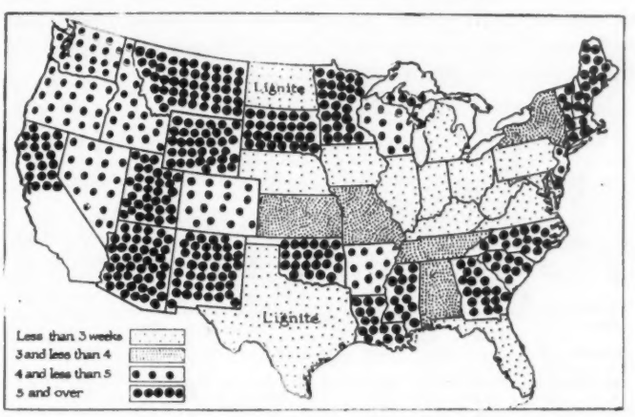


FIG. 3. COAL STOCKS AT INDUSTRIAL PLANTS, MARCH 1, 1920

Stocks of bituminous coal at industrial plants other than steel and byproduct eleven weeks after the coal strike. The West, Northwest, Northeast and South were better supplied than such coal-producing states as Pennsylvania, Virginia, West Virginia, Kentucky, Ohio, Indiana and Illinois.

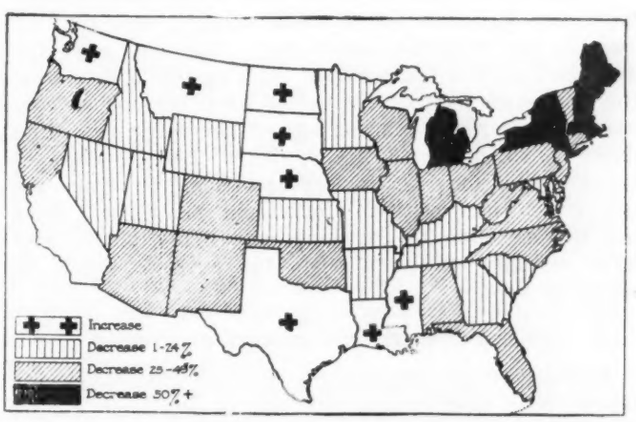


FIG. 4. HOW COAL STOCKS ON MARCH 1, 1920, COMPARED WITH THOSE ON APRIL 1, 1919

Increase or decrease in stocks of bituminous coal at industrial plants other than steel or byproduct. Stocks at the close of the coal year ended April 1, 1919, were admittedly very large. Eleven months later, on March, 1920, they were still larger in seven states west of the Mississippi. East of that river they increased in only one state, and in six states decreased more than 50 per cent.

COMMERCIAL STOCKS OF BITUMINOUS COAL IN THE UNITED STATES

Oct. 1, 1916, to June 1, 1920.
(Net tons)

Oct. 1, 1916	27,000,000	Jan. 1, 1919	57,900,000
Oct. 1, 1917	28,100,000	April 1, 1919	40,400,000
July 15, 1918	39,700,000	March 1, 1920 *a*	24,000,000
Oct. 1, 1918	59,000,000	June 1, 1920 *a*	20,000,000
Day of the armistice	63,000,000		

a Subject to revision.

The record of stock does not extend back far enough into the past to make it possible to state just what constitutes normal on June 1. The fact that stocks on that date were less than a third of the war-time maximum does not prove that they are dangerously low, because the reserve built up during the war was admittedly very large. Furthermore, the reserve needed on June 1 is not as great as that required on the approach of winter. It is clear, however, that seven or eight million tons must be put in storage between June 1 and Oct. 1 in order to bring stocks up to the standard of 1916 and 1917. Yet in neither 1916 nor 1917 were the stocks adequate. The stocks in 1916 were not sufficient to prevent increases of price ranging from 100 to 200 per cent in the winter of 1916-17. The stocks in 1917 were not sufficient to prevent physical suffering and widespread closing down of plants in the severe winter of 1917-18.

SOFT COAL IN HANDS OF VARIOUS CLASSES OF CONSUMERS

(Figures expressed in weeks and days at current rate of consumption at time of stock taking)

	Oct. 1 1916	Oct. 1 1917	July 15 1918	Oct. 1 1918	Nov. 11 1918	Jan. 1 1919	Apr. 1 1919	Mar. 1 1920	June 1 1920
By product coke plants	No data	No data	4–0	4–4	5–0	4–4	3–2	2–1*a*	1–1*a*
Steel plants	3–4	3–6	3–6	6–3	6–3	6–0	5–0	1–2*a*	1–4*a*
Other industrials			6–6	10–1	10–1	9–2	6–5	3–6	3–3
Artificial gas	No data	No data	10–2	12–0	12–1	11–4	8–2	4–3	3–1
Other public utilities	No data	No data	4–3	5–6	6–2	7–1	7–1	3–0	3–1
Coal dealers	No data	No data	2–1	4–0	5–2	5–4	3–4	1–6	1–3
Railroad fuel	2–6	2–4	3–4	4–1	4–3	4–6	No data	1–4*a*	1–3*a*
Totals	(*b*)	(*b*)	4–3	6–1	6–3	6–0	4–3	2–4	2–1

a Estimated from incomplete data, subject to revision. *b* Data incomplete Probably 3–1 for 1916 and 3–0 for 1919.

The reserve on March 1, 1920, shown in the foregoing table was sufficient for 2 weeks 4 days, and that on June 1 for 2 weeks and 1 day. Not only was the average for all consumers low, but, as the table shows, the stocks of each of the seven great groups of consumers were lower than on any of the seven preceding dates for which records are available. Like all averages these figures may be misleading. Some localities are better off than others. Individual plants will have much more than the average, and many plants may have virtually no stock when the average shows an adequate supply.

Fields Covered in Estimate of Stocks

Railroad Fuel.—Stocks of railroad fuel were far below those held by the railroads at any time during the last four years, the period over which records extend (Fig. 2). The decrease was most marked in the Eastern district, particularly New England. Depleted stocks of railroad fuel are significant because they indicate that the roads may have to confiscate coal or assign cars freely, measures which necessarily interfere with regular deliveries to other consumers.

Byproduct Coke Plants.—Incomplete figures indicate that stocks at byproduct plants averaged 15 days' supply on March 1. During the switchmen's strike the stocks of byproduct coke decreased sharply in New England, New Jersey and the six states north of the Ohio and west of Pennsylvania dependent on shipments from the Appalachian region. The average stock on June 1 was exceptionally low—eight days' supply.

Steel Plants.—Stocks at steel plants, estimated from incomplete data, averaged nine days' supply on March 1, but little more than the stock in January, 1918. Steel plants were able to increase their stocks slightly during the switchmen's strike and had on June 1 an average of about eleven days' supply.

Electric Utilities.—Stocks of coal at electric-utility plants averaged three weeks' supply on March 1. This was 58 per cent less than on April 1, 1919, eleven months before. Individual plants held stocks much below the average. Like the steel plants, electric utilities were able to increase their average holdings slightly from March 1 to June 1.

Artificial Gas Plants.—Gas coal was in particularly short supply during the switchmen's strike, and the average stocks at coal-gas plants decreased from thirty-one days' supply on March 1 to twenty-two days' supply on June 1. These stocks were only about a third or fourth of the war-time maximum, and the decrease was very uneven. Plants in the Northwest and Northeast, on the whole, were in a less favorable position than plants in the West and South.

Retail Coal Dealers.—Retail stocks of bituminous coal averaged one week six days' supply on March 1, less than half the supply on April 1, 1919, eleven months before. From March 1 to June 1 stocks increased in the South and Southwest but decreased in the North (Fig. 8). The Far West and Southeast were in relatively favorable position. In the Northeast and territory served by the Lake docks the situation was relatively unfavorable.

Anthracite Stock Larger Than Bituminous

Retailers' stocks of anthracite on June 1, 1920, were in better condition than their reserves of bituminous coal. Pennsylvania anthracite averaged fourteen days' supply, as against ten days' supply of soft coal.

General Industrial Consumers.—Industrial plants other than steel and byproduct plants dropped from an average of twenty-seven days' supply on March 1 to twenty-four days' supply on June 1. In comparison with those shown by past records these stocks were low. Quite as significant as the general average of stocks was the distribution of stocks from state to state, which had been profoundly affected by two disturbing factors—the bituminous coal strike of November-December, 1919, and the railroad switchmen's strike beginning April 1, 1920. The distribution of industrial stocks is the best index to the abnormal features brought about by these causes. (Fig. 3 to 7.)

On March 1 two and one-half months of large production had not entirely overcome the effect of the coal miners' strike. West of the Mississippi and south of the Ohio and Potomac stocks compared not unfavorably with those of the preceding year; in eight states they had increased and in only eleven states had they decreased more than 25 per cent. North of the Ohio and Potomac, in the great industrial section of the country, stocks had been greatly depleted and in general ranged from 33 to 68 per cent lower than the year before.

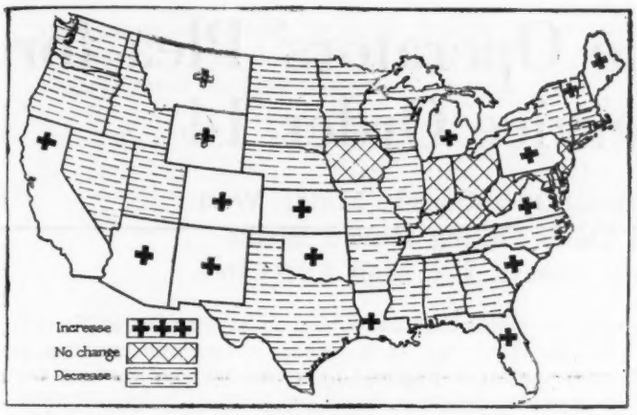


FIG. 5. CHANGES IN INDUSTRIAL COAL STOCKS FROM MARCH 1, TO JUNE 1, 1920

Increase or decrease of bituminous coal at industrial plants other than steel and byproduct coke plants.

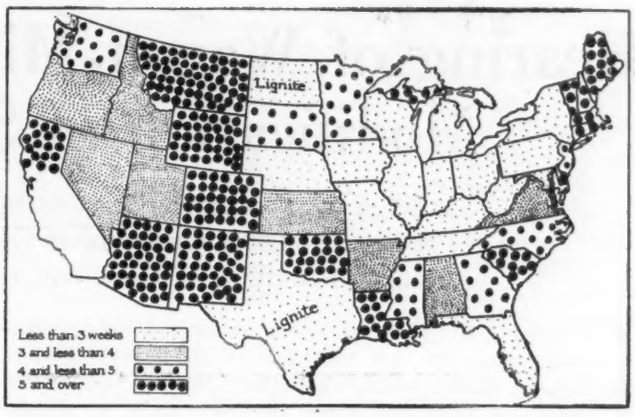


FIG. 6. COAL STOCKS AT INDUSTRIAL PLANTS, JUNE 1, 1920

Bituminous coal at industrial plants other than steel and by-product nine weeks after the switchmen's strike began.

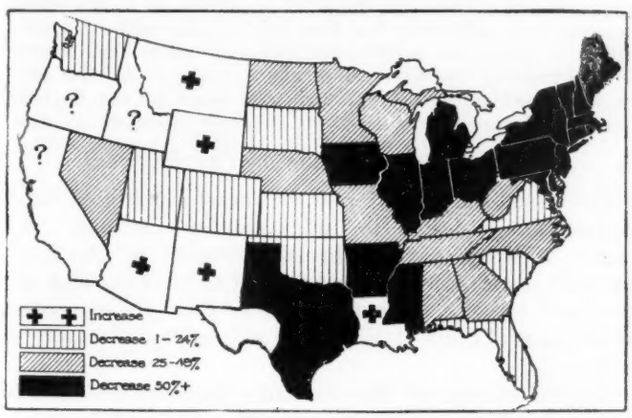


FIG. 7. HOW COAL STOCKS ON JUNE 1, 1920, COMPARED WITH THOSE ON JULY 15, 1918

Increase or decrease in stocks of bituminous coal at industrial plants other than steel and byproduct. In only five states did industrials have larger stocks on June 1, 1920, than in the mid-summer of the war year, 1918. In 18 states the stocks decreased more than 50 per cent; all but four of these states were east of the Mississippi and north of the Ohio and Potomac.

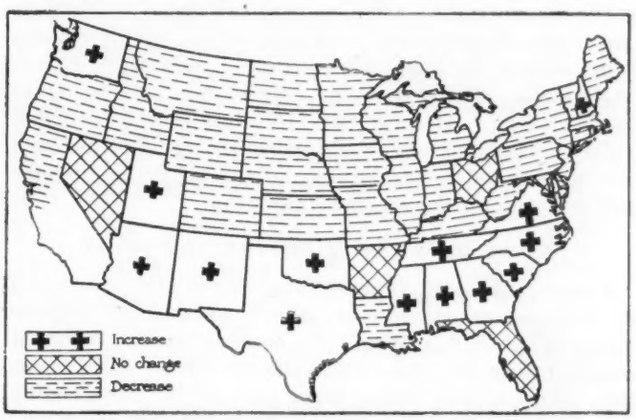


FIG. 8. STOCKS OF COAL IN THE HANDS OF RETAIL DEALERS

Increase or decrease in weeks' supply of bituminous coal from March 1, 1920, to June 1, 1920. No change was made during that interval in four states. These were Ohio, Florida, Arkansas and Nevada. The West and Southwest were in a relatively favorable position compared with the situation in the Northeast and territory served by the Lake docks.

From March 1 to June 1 stocks increased in states not dependent on fields that were affected by the switchmen's strike. In the far West stocks increased, except in Washington and in states dependent on Utah, which had felt the strike. In the South stocks generally decreased. In the industrial Northeast consumers at short-haul destinations received a larger proportion of the total output than usual and either maintained or increased their stocks. At the long-haul destinations—New England, New York, and territory served by the Lake docks—stocks generally decreased.

The switchmen's strike emphasized the inequalities in distribution which had been created by the coal miners' strike. On June 1 stocks in the Great Plains, Rocky Mountain and Pacific Coast States compared not unfavorably with those of midsummer of even the war year, 1918. In the Southeast stocks showed a consistent decrease as compared with the war year, but in only one state did the decrease amount to 50 per cent. In the region north of the Ohio and Potomac, from Illinois to New England, the decrease exceeded 50 per cent in every state except Delaware. In parts of New England and the southern peninsula of Michigan the decrease amounted to 65 per cent.

These facts show clearly that although the stocks at some places in the West and South were low the territory of depleted reserves is the industrial section north of the Ohio and Potomac and east of the Mississippi, together with Missouri and Iowa and that part of the Northwest which is supplied from the Lake docks.

July Exports Increase $3,500,000 Per Day Over One Year Ago

THE latest figures of the exports of manufactures give further evidence that the big gains in exports of manufactures have "come to stay." Manufactures exported in the dull export month of July, says a statemen of the National City Bank of New York, average $11,000,000 a day against $7,500,000 per day in July of last year, and for the seven months ending with July average $11,500,000 per day against $9,333,000 in the same months of last year.

The total exports of manufactures in July 1920, including the two groups, "manufactures ready for use" and "manufactures for further use in manufacturing," aggregated $343,000,000 against $234,000,000 in July of last year, and in the seven months ending with July were $2,451,000,000 against $2,000,000,000 in the same months of last year.

The chief increase occurred in the group "manufactures ready for use" of which the exports in July were $264,000,000 against $167,000,000 in July of last year.

Hearing of Wagon-Mine Operators' Plea for Modification of Service Order 14

Indiana Representative Says 4,800 Small Operations in Middle West Produced 60,000 Carloads of Coal Daily During Recent Strike—Prompt Handling of Cars and Large Output Per Man Also Cited

IN opening the hearing on the application of wagon-mine operators for modification of Service Order No. 14, Commissioner Aitchison called attention to an opinion of the commisison in April, 1918, in which the action of the Baltimore & Ohio R.R. was attacked because it placed a condition in the tariff that open-top cars for wagon mines would not be furnished on its public team tracks. The carrier continued to furnish that class of equipment to tipple mines and to wagon mines where the loading was done on private or industrial tracks. The carrier did furnish box cars for team track loading. Despite the fact that this constituted a discrimination between shippers, the commission held that it operated in the interest of the public as a whole, and was not an unjust discrimination.

Service of Wagon Mines During Strikes

James B. Filbert, representing wagon-mine operators in Indiana, estimated that there were 4,800 wagon-mines in the Middle West. He emphasized the fact that wagon mines are the chief reliance during strikes, as they do not employ union labor and are not governed by union hours of work. During the recent strike of the daymen in Indiana the wagon mines in the Middle West produced 60,000 carloads of coal, he declared. He stated that the cost of loading coal in box cars is prohibitive. He denied any delay of open-top equipment at the wagon mines and stated that all cars placed are loaded the same day. In case one man is late in getting his coal to the car, it is a uniform practice that other loaders assist him so as to prevent the piling up of demurrage charges.

Representative Kincheloe, of Kentucky, made a plea for the wagon-mine operators in his district. He suggested that the Interstate Commerce Commission undertake a survey of car handling at wagon mines. If such a survey should show that wagon mines are not handling cars as expeditiously as do the tipple mines the wagon-mine operators will cease any contention in the matter, he declared.

Says That I. C. C. Has Been Misled

J. F. Gordon, an attorney of Madisonville, Ky., appeared on behalf of the western Kentucky wagon-mine operators. He declared that the Interstate Commerce Commission has been misled just as the "Fuel Administration was misled by selfish interests." A wagon-mine order issued by the Fuel Administration, he said, was drafted by certain big coal nterests n Pennsylvania. He declared the production of coal per man at wagon mines was between five and six tons daily, whereas the larger operators were not getting more than three tons daily per man employed. He said the wagon mines are maintaining a record of over 90 per cent in the matter of car handling efficiency, as against 70 per cent fficiency by the tipple operators. Mr. Gordon suggested the following amendment to Service Order No. 14:

Service Order No. 14 is hereby revised and qualified so that no carrier is required to refuse open-top cars on any day to any wagon mine heretofore engaged in loading open-top cars on sidings, except in cases where such mine has, within the thirty days previous, failed to load and bill, within twenty-four hours after placing, 90 per cent of the number of cars received during such thirty days. Any new mine not heretofore shipping shall be served with cars when reasonably possible for the first thirty days without application to it of the conditional embargo above authorized. In determining the percentage above referred to, the percentage shall be calculated upon the basis of the highest number of cars furnished that is evenly divisible by ten.

Advocates New Basis of Car Rating

Ernest S. Ballard, of counsel for the National Coal Association, objected to Judge Gordon's proposal because "it would have to be administered by the local railroad employees—the local freight train crews and the local agents. It could not be handled from the executive offices and I think it would be subject to all sorts of collusion."

In the course of Mr. Ballard's testimony Commissioner Aitchison said: "I am rather inclined to think the tipple mines ought all to have a new basis of car rating. I think we have a fictitious arrangement which puts that car rating of 100 per cent entirely too high." Mr. Ballard replied by stating that he never had heard anyone suggest that the ratings are not relatively fair, and he characterized this as the important thing.

Wagon Mines Spring Up Like Mushrooms

J. B. Fisher, the general superintendent of transportation of the central region for the Pennsylvania R. R., presented figures to show that in the district under his jurisdiction the number of wagon-mine operators increased from 243 in April to 966 in July, as follows:

Division	April	July
Allegheny	36	243
Renovo	2	12
	38	255
Pittsburgh	75	151
Conemaugh	40	106
Monongahela	29	251
	144	508
C. & P.	7	19
E. & A.	7	17
Akron	0	6
	14	42
Eastern	1	2
Pan Handle	43	89
Marietta	0	28
Wheeling	3	42
	47	161
	243	966

Since the restrictions were placed on open-top cars for wagon mines fifty-seven ratings have been assigned to former wagon-mine operators, Mr. Fisher said, in speaking of his own district. "Wagon mines are adapt-

ing themselves quickly to tipple loading and a regular mine rating," he said. As examples of slow loading, the following was submitted:

J. C. Heckman, loader, Indiana, Pa.
Conemaugh Division.

P. R. R. car No. 157,492 placed 4:00 p.m., June 23; released 4:30 p.m. June 29.

24th—17 hours—counting from 7:00 a.m.	28th—24 hours
25th—24 hours	29th—16½ hours
26th—24 hours	
27th—Sunday	Total, 105½ hours

Snaden Coal Co., loader, Connellsville, Pa.
Monongahela Division.

P. R. R. car No. 413,524, placed 2:00 p.m., June 18; released 4:00 p.m., June 23.

18th —10 hours	22nd —24 hours
19th —24 hours	23rd —16 hours
20th —Sunday	
21st —24 hours	Total, 98 hours

Gibson Coal Co., loader, Connellsville, Pa.
Monongahela Division.

Y. R. car No. 19,823, placed 2:00 p.m., June 21; released 6:00 p.m., June 26.

21st —10 hours	25th —24 hours
22nd —24 hours	26th —18 hours
23rd —24 hours	
24th —24hours	Total, 124 hours

C. P. Reed, loader, West Monessen
Monongahela Division.

P. R. R. car No. 165,892, placed 8:00 a.m., June 21; released 4:00 p.m., June 25.

21st —16 hours	24th — 24 hours
22nd —24 hours	25th — 16 hours
23rd —24 hours	
	Total, 104 hours

A. J. Connelly, loader, Nanty Glo, Pa.
Cresson Division.

P. R. R. car No. 300,913, placed 9:35 a.m., June 24; released 2:00 p.m., June 29.

24th —14 hours	28th — 24 hours
25th —24 hours	29th — 14 hours
26th —24 hours	
27th —Sunday	Total, 100 hours

By being allowed to supply box cars to wagon mines, Mr. Fisher stated, it now is possible to increase the distribution of cars to tipple mines to the point where full car supply could be furnished.

Another interesting point made by Mr. Fisher is the difficulties which arise with priority orders. He took a typical week as an illustration. During that week the daily loadings were 4,100 cars. Of that number, 2,200 were assigned cars. Over 800 of the 2,200 were assigned cars for public utilities. The Lakes and Tidewater took 900 cars, while 500 of those loaded were privately-owned cars. This left few cars to be distributed among other commercial users.

Tipple- and Wagon-Mine Loading Compared

R. C. Morse, superintendent of freight transportation in the eastern Pennsylvania region, submitted exhibits showing that in April there were 512 wagon-mine operators in his region and in July there were 1,211. Throughout Pennsylvania the average time required by wagon-loading operators to load cars was 1.29 days, whereas the loading average at tipple mines is shown to be two-tenths of a day, according to exhibits submitted by Mr. Morse.

[*Later news of the result of the hearing will be found in News from the Capitol, page 651.*]

Mine Safety Engineers to Meet with Safety Council in Milwaukee

Hubbell to Speak on Nursing, Mitten on Shaft Safety Devices, Allen on Cage Signals, Shields on First-Aid Judges, Walter and Walsh on Gas Explosions, Kudlich on Roof Falls

THE Ninth Annual Safety Congress of the National Safety Council will be held in the Auditorium, Milwaukee, Wis., Sept. 27 to Oct. 1, 1920, inclusive. On Monday morning, Sept. 27, at 10 o'clock, in Plankinton Hall will be held the annual members' meeting, with R. C. Richards, president, acting as chairman.

In the afternoon, at 3:30 o'clock, in the Arena on the first floor, will be held a public mass meeting. The chairman will be George P. Hambrecht, of the Industrial Commission of Wisconsin. The program will be as follows: (1) "Safety Service," by Marcus A. Dow; (2) an address by a speaker of national prominence, who will discuss the importance of safety to industry and the national welfare.

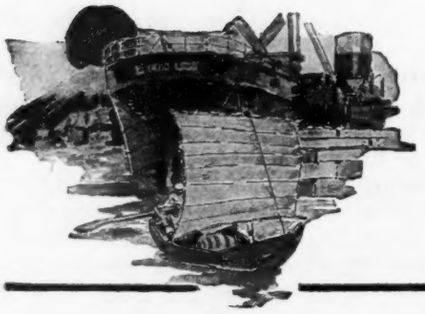
On Tuesday morning, Sept. 28, at 8 o'clock, in Plankinton Hall on the second floor, will be held a General Round Table. The chairman will be Frank E. Morris, secretary of the Syracuse (N. Y.) local council. The topic for discussion will be "New Ways of Keeping Up Interest in Safety: (a) no-accident week, (b) competitive departmental records, (c) moving pictures, (d) talks by the manager and (e) other methods."

On Tuesday afternoon, Sept. 28, at 2:30 o'clock, the mining section will hold a session, when the reports of the officers will be read and the nominating committee appointed. The following papers will be read: (1) "Vocational Training as Influencing Safety and Efficiency in Mining," by A. C. Mitke, consulting mining engineer, Bisbee, Ariz.; (2) "Industrial Nurses in Mining Communities (metal mining)," by George Martinson, safety inspector, Hibbing, Minn.; (3) "Industrial Nurses in Mining Communities (coal mining"; (4) "Getting the Safety Message to the Individual Miner," by N. D. Hubbell, general manager, Davis Automatic Cradle Manufacturing Co., Uniontown, Pa.

On Wednesday morning, Sept. 29, at 9:30 o'clock, the Mining Section will hold a second session. The program will be as follows: (1) "Safety Devices on Hoisting Engines," by L. F. Mitten, Vulcan Iron Works, Wilkes-Barre, Pa.; (2) "Signaling from Moving Cages" by Carl A. Allen, district mining engineer, U. S. Bureau of Mines, Salt Lake City, Utah; (3) "The Standardization of First-Aid Contests" by Major M. J. Shields, of the American Red Cross, Washington, D. C.

On Thursday morning, Sept. 30, at 9:30 o'clock, the program will include: (1) "General Rules for Gas-Explosion Prevention (bituminous coal mines)," by R. A. Walter, general superintendent, Wisconsin Steel Co., Benham, Ky.; (2) "General Rules for Gas-Explosive Prevention (anthracite coal mines)," by Joseph J. Walsh, district state mine inspector, Nanticoke, Pa.; (3) "Requirements of Safety Training for Metal Miners" by O. Woodburn, director of the Globe-Miami District Mine-Rescue and First-Aid Association, Globe, Ariz.

On Friday morning, Oct. 1, at 9:30 o'clock, the report of the nominating committee will be made and the following papers presented, each to be followed by discussion: (1) "Accidents from Falls of Roof and Ground (metal mines)," by John L. Boardman, of the Anaconda Copper Mining Co., Butte, Mont.; (2) "Accidents from Falls of Roof and Ground (coal mines)," by H. A. Kudlich, chief safety inspector, of the Delaware & Hudson Coal Co., Scranton, Pa.; (3) "Hazards Met in Open-Cut Mining," by D. E. A. Charlton, managing editor of the *Engineering and Mining Journal*, New York City; (4) "Hazards Met in Anthracite Stripping" by F. S. Gallus, district superintendent of strippings, Lehigh Coal & Navigation Co., Lansford, Pa.



Foreign Markets and Export News

Reported Exports of Coal and Coke During July

Exports of coal and coke, as reported by the Bureau of Foreign and Domestic Commerce, for July, 1920, and the figures for July, 1919, as finally revised, are as follows:

EXPORTS OF COAL AND COKE
(In Net Tons)

	July, 1919	July, 1920
Anthracite	487,653	659,095
Bituminous	2,027,206	3,556,802
Exported to:		
France	None	261,555
Italy	167,559	126,069
Netherlands	77,812	134,212
Sweden	23,494	281,418
Switzerland	96,866	60,297
Canada	1,338,108	1,684,722
Panama	None	9,899
Mexico	5,824	16,683
British West Indies	16,528	14,156
Cuba	75,085	94,019
Other West Indies	5,147	9,179
Argentina	28,712	130,393
Brazil	54,595	83,468
Chile	None	53,767
Uruguay	7,775	25,158
Other countries	129,701	571,807
Coke	37,703	80,112

EXPORTS DURING JULY, 1920, BY CUSTOMS DISTRICTS
(In Net Tons)

	Anthracite	Bituminous	Coke
Maine and New Hampshire			100
Vermont	2,587	6,874	112
Massachusetts	54		
St. Lawrence	204,248	196,487	3,097
Rochester	97,943	82,919	
Buffalo	260,610	278,097	24,975
New York	30,204	6,581	1,658
Philadelphia	36,458	143,884	807
Maryland	669	290,912	6,536
Virginia		1,293,700	
South Carolina		64,826	
Georgia		20,927	
Florida	3,009	19,426	
Mobile		13,275	
New Orleans		1,344	22
Sabine			117
San Antonio		829	50
El Paso	242		5,714
San Diego	17	6	
Arizona		4,804	11,312
San Francisco		10	373
Washi gton	56	2,488	795
Dakota	217	12,472	1,409
Duluth and Superior	1,419	2,030	139
Michigan	141	236,991	18,313
Ohio	21,221	877,611	4,575
Porto Rico		309	8
Totals	659,095	3,556,802	80,112

BUNKER COAL.

Customs Districts	Net Tons
Maryland	80,871
New York	262,925
Philadelphia	40,606
Virginia	259,536

June Coal Output in the Ruhr Is Highest Since the War

Production of coal in the Ruhr in June, according to *The Iron and Coal Trades Review*, was higher than in any month since the revolution. It amounted to 7,454,000 tons, as compared with 7,092,000 tons in May, although the average daily output receded from 305,043 tons in May to 304,246 tons in June as a consequence of the slight falling off in the extra half-shifts worked. The total production in the first half-year reached 41,019,000 tons as contrasted with 31,560,000 tons in the corresponding period in 1919, being an increase of 9,459,000 tons. The daily output averaged 277,161 tons and 213,972 tons in the two half years respectively.

In considering the figures, it has to be borne in mind that a loss in production of nearly 4,000,000 tons took place through the strike in April, while the loss was much less in the previous month when unrest was created by the Kapp disturbances. As compared with the first half of 1914, when 56,060,000 tons were raised in the Ruhr, the production in the first six months of 1920 shows a reduction of about 27 per cent.

It is reported that Hugo Stinnes is endeavoring to acquire possession of coal merchant undertakings both in Denmark and Sweden.

Bolshevik Occupation Hampers Coal Production

Discussing the present state of the Donetz coal mining industry, the *Economiste Européen* states that whereas before the Bolshevik occupation the output had attained the pre-war level, it has since relapsed to a quarter or a fifth of that figure. The decline is not attributable so much to transport defects as to a reduction in efficiency at the pits. An official inquiry instituted by the Bolshevik Government finds that this is due to a very defective organization of food supplies, the workmen being badly nourished, and, as a consequence, apathetic. A similar situation exists in the Moscow basin, which has been in the hands of the Bolshevik since 1917.

Foreign Freight Rates Manifest Firmness for Prompt and Advance Loading

W. W. Battie & Co.'s coal trade freight report announces that the freight market to West Indian destinations during the past week has shown slight advance while to South American destinations rates have been steady to firm at about the previous week's level. To European destinations a firm tone has been maintained both for prompt and forward loading.

Freight rates by steamer are as follows:

	Sept. 13	Tons Discharged Daily	Sept. 6	Tons Discharged Daily
Malmo	About 15.00 —	1,000	14.50/15.00 —	1,000
Copenhagen	About 15.00 —	1,000	14.50/15.00 —	1,000
Stockholm	About 15.50 —	800	15.00/15.50 —	800
Gothenburg	About 15.00 —	1,000	14.50/15.00 —	1,000
Antwerp/Rotterdam	About 12.50 —	1,000	12.00/12.50 —	1,000
Hamburg	About 14.50 —	1,000	About 14.50 —	1,000
French Atlantic ex Rouen	13.00/13.50 —	700	12.50/13.00 —	700
Algiers	15.00/15.50 —	800	About 15.00 —	800
West Italy	About 15.00 —	1,000	14.00/14.50 —	1,000
Marseilles	About 15.00 —	1,000	About 14.50 —	1,000
Piraeus	About 16.50 —	1,000	About 16.00/16.50–1000	
Trieste/Venice	About 16.00 —	1,000	About 15.50 —	1,000
Port Said	16.00/16.50 —	1,000	16.00/16.50 —	1,000
Constantinople	17.00/17.50 —	500	16.50/17.00 —	500
Gibraltar	About 14.50 —	1,000	About 14.00 —	1,000
Pernambuco	About 16.00 —	500	15.00 —	500
Bahia	15.00/16.00 —	500	15.00 —	500
Rio	15.50/16.00 —	1,000	15.00 —	1,000
Santos	16.00/16.50 —	600	16.00/16.50 —	600
Buenos Aires or Montevideo or La Plata	14.50/15.50 —	750	14.50/15.00 —	750
Para	About 15.00 —	500	About 15.00 —	500
Rosario	16.00/16.50 —	750	16.00/16.50 —	750
To Nitrate Range	10.00/10.50 —	750	About 9.00 —	750
Havana	About 6.50 —	500	About 6.00 —	500
Sagua or Cardenas	7.50/ 8.00 —	300	7.50/ 8.00 —	300
Cienfuegos	7.50/ 8.00 —	500	About 7.00 —	500
Caibarien	7.50/ 8.00 —	300	7.50/ 8.00 —	300
Guantanamo	7.50/ 8.00 —	500	7.00/ 7.50 —	500
Manzanillo	About 9.00 —	300	About 9.00 —	300
Bermuda	About 7.00 —	300	6.50 —	300
	Bermuda p. c. and dis. free			
Kingston	About 8.50 —	400	About 8.00 —	400
Barbados	9.50/10.00 —	500	About 9.50 —	500
St. Lucia	9.50/10.00 —	500	About 9.50 —	500
Santiago	7.00/ 7.50 —	500	7.00/ 7.50 —	500
Port of Spain, Trin	9.50/10.00 —	500	About 9.50 —	500
Curacao	About 10.00 —	500	About 8.50 —	500
	Free p. c. Curacao			
Demerara	About 13.00 —	400	About 13.00 —	400
St. Thomas	8.50/ 9.00 —	500	About 7.50 —	500

All above rates gross form charter.

News from the Capital

By Paul Wooton

Court Upholds Right of Railway to Dismiss Employees Who Join Labor Union

"JUSTICE SIDDONS of the Supreme Court of the District of Columbia in a decision rendered Sept. 3, denied the application of Local 418 of the Brotherhood of Trainmen for an injunction to restrain the Washington & Old Dominion Ry. from discharging employees who joined the union. The Court held that the railway's "right to dismiss its employees for becoming members of a labor union is supported by the judgment of the highest judicial tribunal in the country."

Wagon Mines to Get Open-Top Cars If Able to Load in Twenty-Four Hours

AS a result of the protest of wagon-mine operators that they had been discriminated against in being denied open-top cars, although in many instances their operations caused no more delay in car movement than properly equipped tipple mines, the Interstate Commerce Commission on Sept. 17 modified the order. The order now provides that wagon mines not equipped with tipples or elevations may receive open-top cars from the surplus supply if able to load the cars within twenty-four hours.

The new wagon-mine order came as a surprise. There was no intimation that the former order was to be changed. It is believed, however, that the 24-hour feature of the order will eliminate inefficient wagon mines, which were the only ones against whom complaint had been made.

The order as modified is known as Service Order No. 17. The new provision is embodied in the following paragraph from the order:

It is ordered that . . . Upon any day when a common carrier by railroad is unable to supply any mine upon its line with the required open-top cars, open-top cars shall not be furnished or supplied by it to any other mine which customarily does not load or is unable to load such open-top cars with coal within twenty-four hours from and after the time of placement for loading by the carrier, until all other mines have been fully supplied with open-top cars.

Modified Service Orders Are Issued to Prevent Abuses

SERVICE orders issued by the Interstate Commerce Commission on Sept. 17 separate the open-top car priority from that giving assigned cars to public utilities. Abuses of the public-utility order led to the embodiment of additional restrictions in the new order. The new orders are known as Service Orders Nos. 15, 16 and 17. Nos. 15 and 16 supersede Service Orders Nos. 7, 9 and 12 as amended. No. 17 relates to wagon mines, noted elsewhere. Extracts from Order No. 16 are as follows:

It is ordered that common carriers furnish open-top cars suitable for the loading and transportation of coal in preference to any other use, supply, movement, etc., unchanged or return of such coal cars, provided that such coal cars may be used in service, move in the direction of the mines to be supplied in the return movement, upon a route not materially out of line and to points not beyond such mines; and provided further that the phrase "coal cars" as used in this order shall not include flat-bottom gondola cars with sides less than 38 in. in height inside measurement, cars equipped with racks or cars which on June 19, 1920, were retired from service for the transportation of coal and stenciled or tagged for other service.

It is further ordered that all non-coal-loading carriers deliver daily to connecting coal loading carriers, empty or loaded coal cars up to the maximum ability of such non-car-loading carriers to make such deliveries and each such connecting coal loading carriers will receive and use the coal cars so delivered for preferential purposes.

It is further ordered that all common carriers discontinue the use of coal cars for commodities otherwise than as hereinbefore specified, (a) as to each coal-loading carrier so long as any coal mine remains to be served by it with coal cars, and (b) as to each non-coal loading carrier so long as deliveries of any coal cars to connecting carriers may be due or remain to be performed in the terms of this order.

It is further ordered that carriers shall place an embargo against the receipt of coal or other freight in open-top cars suitable for coal loading as hereinbefore defined, by any consignee, and against placements of such cars for consignment to any consignee who shall fail or refuse to unload such cars placed for unloading within 24 hours after such placement, until all coal or other freight so placed has been unloaded by such consignee, provided this shall not interfere with the movement of coal to any coal pool when authorized heretofore by the commission, or coal consigned to Tidewater or the Lakes for transshipment by water, nor shall it apply where the delay in unloading is attributed to the railroad.

The abuses under Service Order No. 9, which has been superseded by Service Order No. 15, had become so frequent that serious inroads were being made on car supply. Various enterprises serving public utilities are understood to have been receiving coal supply in assigned cars on the alleged ground that they formed a necessary part of public utility activities. It is believed that the restrictions placed in the new order will make its policing much easier.

A determined effort was made to limit the open-top car priority order so as not to include cars with sides less than 42 inches in height. This would have released 25,000 cars for general loading. The commission, however, continued the 38-inch provision.

In declining to change the open-top car order so as to limit its application to cars with sides 42 inches high, the commission took into consideration the fact that a great deal of domestic coal still has to be moved. Retailers have been delaying their orders in expectation of lower prices. In addition, it will be necessary to take away from the coal industry enough cars to handle the sugar-beet crop. The beets produced in Michigan, Indiana, Ohio, Illinois and Wisconsin already are beginning to move. The movement in the states west of the Missouri River will begin Oct. 1. A considerable number of cars also are in service transporting road materials and other essential commodities under permit. In view of these various reasons, the commission could not see its way clear to grant the 42-inch specification despite the very urgent demand which exists for these cars.

It also is believed that the commission regarded prices as the best indication that the need for car priority had not passed. When coal is sufficiently plentiful to give reasonable assurance that the winter's needs will be cared for it is believed that the situation will be clearly reflected by prices.

Forbids Passing Increase in Coal Price to Users of Electric Power

PERMISSION to pass on increases in the cost of coal to wholesale users of electricity has been denied by the Public Utilities Commission of the District of Columbia. The Potomac Electric Power Co. had requested permission to insert a coal clause in its contracts with large users of power. The commission took the position that the coal clause "is objectionable because there is less incentive to secure coal at the most advantageous price when it is known that the cost is passed automatically to the consumer. As the increase in the cost of coal affects all consumers, such an increase should be borne as nearly as possible by each class in its proper proportion."

Advocates Bureau for Purchase of All Government Coal Supplies

COAL for all governmental departments will be purchased by one central bureau if a recommendation of E. J. Ayres, chief executive officer and superintendent of buildings of the Interior Department, to Secretary Payne, is approved. Mr. Ayres says it would result in a material saving and eliminate duplication of supplies as well as reduce the personnel of the various purchasing offices from 25 to 50 per cent.

Mr. Ayres refers to the successful operation of the Government fuel yards in Washington, which were established in 1918, and which furnish fuel for Government departments in the District of Columbia, excepting the Navy Yard. During the year ended June 30 last 275,000 tons of coal were delivered to 725 distributing points, with a material saving as compared with the former practice of purchasing and handling coal under separate contracts by different branches of the service.

G. S. Rice Advocates Super-Power Plants In North Appalachian Coal Fields

A NUMBER of suitable locations in the North Appalachian coal fields are available in which super-power p'ants can be established, in the opinion of George S. Rice, chief mining engineer of the Bureau of Mines. Mr. Rice believes there are a number of important reasons why the plants should be located in coal-mining regions in the development of the Boston-Washington super-power scheme, rather than at tidewater. He is of the opinion that a number of plants developing from 30,000 to 60,000 electric horsepower could be used. He suggests Mount Union, Clearfield, Tyrone, Johnstown, Cumberland and Fairmont as locations which would meet the requirements.

Reported Movement of Coal by Rail During First Three Months of 1920

COAL tonnage handled by the railroads of the country during the first three months of 1920 is shown in the first summary of freight commodity statistics of Class 1 roads issued by the Interstate Commerce Commission on Sept. 16. These roads represent 91.8 per cent of the total tonnage originating on all roads, exclusive of switching and terminal companies.

The report shows that for the United States 639,894 carloads of anthracite coal, totaling 30,374,695 tons, were handled as revenue freight; 3,399,164 cars of bituminous, aggregating 166,016,366 tons, and 341,816 cars of coke, aggregating 12,197,243 tons.

For the Eastern district the revenue freight coal carried was: 605,310 cars of anthracite, aggregating 29,137,711 tons; 1,981,182 cars of bituminous, aggregating 100,459,698 tons; 264,064 cars of coke, aggregating 9,639,425 tons.

Coal carried as revenue freight in the Pocahontas district amounted as follows: Anthracite, 1,443 cars, aggregating 50,487 tons; 283,345 cars of bituminous, aggregating 15,184,856 tons; 13,971 cars of coke, aggregating 525,570 tons.

Revenue freight handled in the Southern district: Anthracite, 1,565 cars, aggregating 64,510 tons; bituminous, 410,931 cars, aggregating 19,226,453 tons; coke, 24,363 cars, aggregating 803,001 tons.

Revenue freight handled in the Western district: Anthracite, 31,576 cars, aggregating 1,121,987 tons; bituminous, 723,706 cars, aggregating 31,145,359 tons; coke, 39,418 cars, aggregating 1,229,247 tons.

Lackawanna Submits Segregation Plain; Also Wants to Increase Capital

THE Interstate Commerce Commission has announced the plan of the Delaware, Lackawanna & Western R.R. for the segregation of its coal properties from its railroad operations. In the petition submitted to the I. C. C. permission was asked to increase the capital stock of the railroad in order to facilitate the wider distribution of its profits. The high dividends paid by the company on its limited capital stock has led to the conclusion that its earnings were excessive, and the assertion was made that an increase of capital would prevent this inference.

The present surplus of the company exceeds $90,000,000, the application to the commission stated, while its capitalization is less than $43,000,000. Investments in road and equipment in Pennsylvania exceed $87,000,000, and total investments in controlled lines are reported to exceed $224,000,000. Expansion of capitalization, it was said, has been prevented by the company's ownership of coal properties.

With the segregation of its coal properties the company will hereafter conduct only a transportation business.

The petition stated that since early in its history the Delaware, Lackawanna & Western has been operating in the dual capacity of a coal company and of a transportation company operating a system of railroads. Such operations have subjected it to laws preventing the expansion of its capitalization to keep pace with the growth of its assets. The Interstate Commerce Commission is requested to issue an order authorizing the company to increase its capital stock to the full amount of its surplus, or such part thereof as the commission may approve.

Government Leases Coal Lands in Alaska

A COAL-MINING lease covering 1,397.28 acres in the Cook Inlet field of Alaska has been granted by the Interior Department to Edward T. McNally, of Anchorage, Alaska, under the act of Oct. 20, 1914. The lease calls for an investment of $140,000 in actual mining operations on the part of the lessee, who will also pay the Government a royalty of 2c. a ton for the coal mined and rentals per acre as follows: 25c. for the first year; 50c. for the next four years and $1 yearly thereafter.

The Alaska Coke & Coal Co., of Seattle, Washington, has obtained a lease on blocks 26 to 31 inclusive, a total of 2,040 acres of land, in the Bering River coal field of Alaska. The lease is for a term of fifty years and calls for an investment of $75,000 by the lessee and the same royalty and rental terms as the preceding lease.

Army Coal Buyer Goes Shopping

WITH the intention of purchasing $2,000,000 worth of coal, Colonel J. P. Barney, in charge of coal purchases for the Army, left Washington Sept. 13, with a tentative itinerary as follows: Philadelphia, Sept. 13, 14 and 15; New York, Sept. 16, 17 and 18; Chicago, Sept. 20, 21 and 22; Atlanta, Sept. 24, 25, 26, 28 and 30; Charleston, Sept. 27; Birmingham, Sept. 29, and Norfolk, Oct. 2.

Colonel Barney will make contracts for spot coal with leading operators in the districts to be visited, including both bituminous and anthracite coal. This coal is for Army posts in the Northeastern, Eastern, Southeastern and Central departments to meet the requirements for the fiscal year ending June 30, 1921, which have not already been purchased by department quartermasters or the Washington office. The coal is to be purchased for delivery prior to June 31, 1921.

Hearing on Chicago Coal Supply Postponed

WHEN the hearing scheduled by the Public Utilities Commission at the instigation of the Chicago Real Estate board to determine why the railroads cannot carry sufficient coal into Chicago to supply the local need, came up Sept. 13 before Examiner Slater of the commission, a continuance was granted at the request of Lewis Orr, representing the real estate board, the case being placed on the calendar for Sept. 22.

Mr. Orr, in asking a continuance, said that certain information of an important nature was lacking, and while it was of vital importance that the case be heard before the date for starting furnaces in public buildings, it was equally necessary that he be given time to secure the information now lacking.

Indiana Commission to Fix Coal Prices, Levy Tax and Require Licenses

COAL operators, wholesalers and dealers in Indiana have been summoned to appear Sept. 27 before the special State Coal and Food Commission and give information on coal-production costs in Indiana, the Federal court recently having decided that the state was within its rights when it took action to regulate the coal business.

The information obtained probably will be considered by the commission together with the data that it has been assembling, principally from records in the State Mine Inspector's office. The information will provide the basis for the fixing of coal prices in Indiana. Jesse Eschbach, chairman of the commission, announces that prices will be fixed within a few weeks.

The notices read:

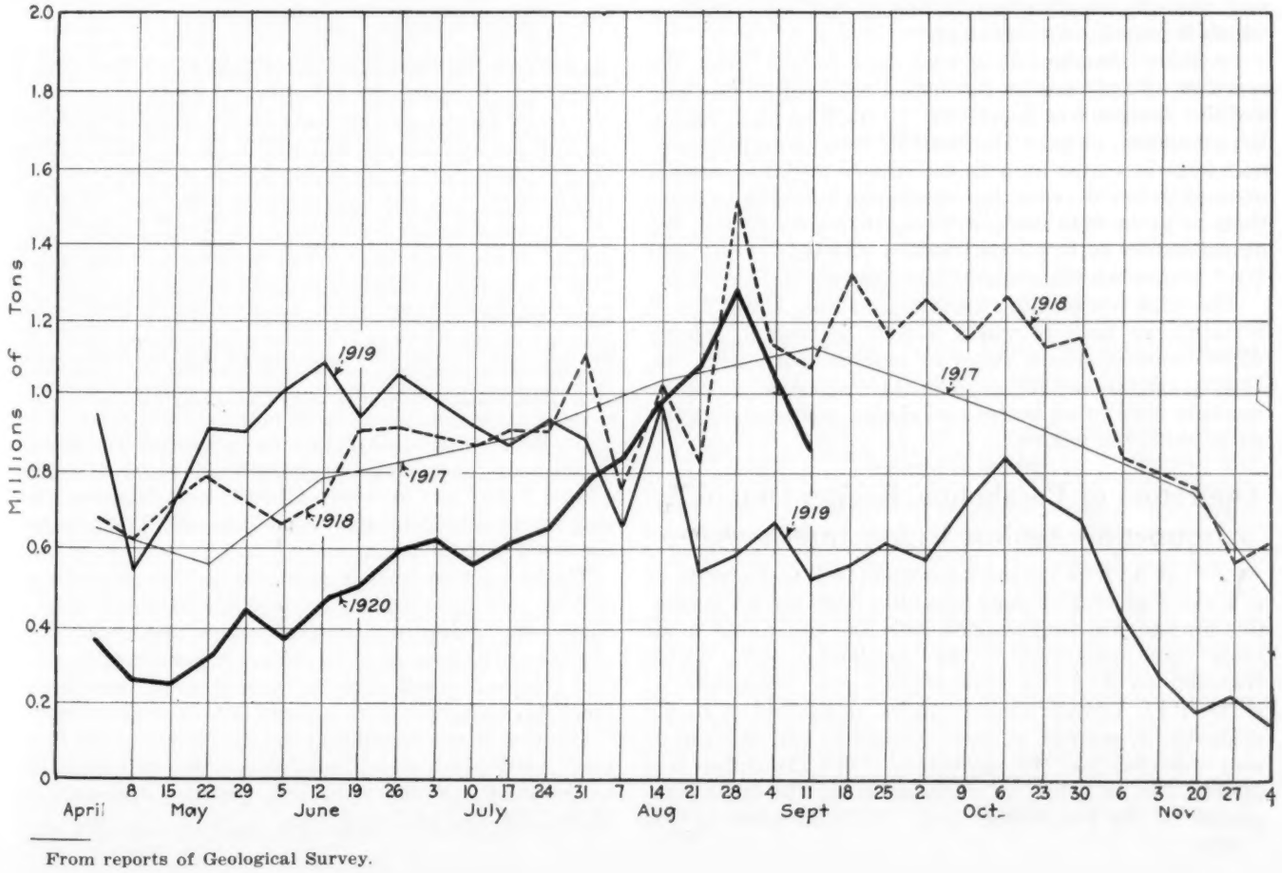
"You are hereby notified that the special coal and food commission of Indiana will, on Monday, Sept. 27, 1920, at 9 o'clock a.m. at the office of said commission, Room 332, in the Statehouse, in the City of Indianapolis, begin a hearing for the purpose of regulating and fixing the maximum price at which all coal moving in intrastate commerce in the state of Indiana shall be sold, both to jobbers, wholesale and retail dealers."

Organize Coal Exporters' Association to Check Irresponsible Dealers

A NEW organization to be known as the Association of American Coal Exporters was formed in New York City on Sept. 14. It starts out with a membership of eighteen, has fixed its initiation fee at $5,000 and annual dues at 1c. per ton. Officers will be chosen at another meeting to be held soon. Temporary offices have been established in the office of the Wholesale Coal Trade Association of New York, Inc., at 90 West St.

The object of the organizers of the new association is to stabilize the business and check the activities of irresponsible exporters, as well as to foster and increase the prestige of that vast number of American coal exporters whose conduct is governed by the highest business ethics. It is proposed to appoint the following committees at the outset: Membership, legislation, ocean transportation (charters), inland transportation, pier facilities and publicity.

Weekly Dumpings of Bituminous Coal (Cargo and Fuel) at Lake Erie Ports*



From reports of Geological Survey.

The Labor Situation

Edited by
R. Dawson Hall

Block-Coal Miners of Indiana Want Tonnage Scale Revised; Daymen Get $1.20 Advance

ALTHOUGH the coal miners and operators of the block-coal district of Indiana, centering in Brazil, have agreed that the daymen shall receive the standard increase of $1.50 per day, the mine workers still are not satisfied and want the tonnage scale also revised upward. The operators have refused even to discuss the matter, and the officers of District 8, by which number the block-coal district is designated, are appealing to John L. Lewis for this further revision of the contract now in force.

Policy Committee Advises Anthracite Mine Workers to Return to Work

APPARENTLY the policy committee of the United Mine workers decided on Sept. 13 to advise the striking men in the anthracite region to go back to work and so notified Secretary of Labor Wilson. As he was away from Washington the policy committee took no further action till the evening of Sept. 16, when they issued a proclamation calling on the men to take up their tools. On the following day Mr. Wilson answered the telegram, saying "I shall be glad to meet the committee and carefully consider any claims of the mine workers which it may have to present."

As there remained only two days in the week the reaction of the men to the notice was not immediate, and the outcome was uncertain. In the Shamokin region the pumpmen, firemen and monthly men quite generally quit work in sympathy with the miners, and the question of reinstatement arose, the companies refusing to allow them to go back to work, arguing that according to the agreement to do this constituted a violation of the contract even when the contract has expired for other men.

The mine workers in two districts, Nos. 1 and 7, will certainly go back to work, but in District 9, though 45,000 mine workers voted to resume work Sept. 20, 10,000 will remain idle until the operators reinstate the monthly men, mine bosses and clerks, who quit in sympathy with the miners.

Operators of Pocahontas Region Obtain an Injunction Against Union Interference

APPLICATION having been made to I. C. Herndon of the Mercer-McDowell Circuit Court for an injunction to restrain interference with the non-union labor basis now prevailing in the Pocahontas field, Judge Herndon on Aug. 25 gave officials and organizers of District 17, United Mine Workers, until Sept. 1 to file affidavits in support of their answer to the petition of coal operators for the injunction. The injunction was applied for on behalf of forty-seven of the large companies in the Pocahontas field. It is asserted by the operators in their application that fully 75 per cent of the employees of the companies, numbering about 12,000 men, have individual non-union contracts and that any attempt to cause such men to join the union is an interference with the non-union contract.

When the court met on Sept. 1 it afforded each side time in which to submit short briefs citing the authorities on which it based its contentions. The defense is relying for its authority on a portion of the decision in the Hitchman case so long in the courts. The plaintiffs have cited in support of their contention the decision in the case of the Atlantic Smelting & Refining Co. vs. Structural Iron Workers Union handed down by Vice Chancellor Backus of New Jersey; the case of Thacker Coal vs. Burke, handed down by the West Virginia Supreme Court, and the famous Hitchman case. The Pocahontas case, however, may become equally famous. Inasmuch as the injunction sought by the Pocahontas operators is attracting widespread attention, a portion of the decision in the Hitchman case is herein quoted:

> Respecting the sweep of the injunction, we differ somewhat from the result reached by the district court: So far as it restrains (1) interfering or attempting to interfere with plaintiff's employees for the purpose of unionizing plaintiff's mine without its consent, by representing or causing to be represented to any of plaintiff's employees, or to any person who might become an employee of plaintiff, that such person will suffer or is likely to suffer some loss or trouble in continuing or in entering the employment of plaintiff, by reason of plaintiff not recognizing the union, or because plaintiff runs a non-union mine; (2) interfering or attempting to interfere with plaintiff's employees for the purpose of unionizing the mine without plaintiff's consent, and in aid of such purpose knowingly and wilfully bringing about the breaking by plaintiff's employees of contracts of service known at the time to exist with plaintiff's present and future employees; (3) knowingly and wilfully enticing plaintiff's employees, present or future, to leave plaintiff's service on the ground that plaintiff does not recognize the United Mine Workers of America or runs a non-union mine, etc.; (4) interfering or attempting to interfere with plaintiff's employees so as knowingly and wilfully to bring about the breaking by plaintiff's employees, present and future, of their contracts of service, known to the defendants to exist, and especially from knowingly and wilfully enticing such employees, present or future, to leave plaintiff's service without plaintiff's consent; (5) trespassing on or entering upon the grounds and premises of plaintiff or its mine for the purpose of interfering therewith or hindering or obstructing its business, or with the purpose of compelling or inducing, by threats, intimidation, violent or abusive language, or persuasion, any of plaintiff's employees to refuse or fail to perform their duties as such; and (6) compelling or inducing or attempting to compel or induce, by threats, intimidation, or abusive and violent language, any of plaintiff's employees to leave its service or fail or refuse to perform their duties as such employees, or compelling or attempting to compel by like means any person desiring to seek employment in plaintiff's mine and works from so accepting employment therein—the decree is fully supported by the proofs.

On Sept. 16 the injunction as requested was granted by the court, requiring the plaintiffs, however, to execute a bond for $5,000 to insure all costs and damages which may be sustained by the defendants should the injunction be dissolved later.

The injunction forbids attempts on the part of union officials to induce miners in this field to break what the companies allege is a contract of employment. It restrains union men from entering on the property of the coal companies, but does not forbid public meetings or meetings on property not owned by the coal companies.

Companies represented in the Pocahontas Coal Operators' Association which applied for the writ operate in an area of 109,000 acres and produce approximately 25,000,000 tons of coal a year.

Central Pennsylvania Miners Dissatisfied With Standard Advance Given Daymen

ON SATURDAY, Sept. 11, the executive committee of the Central Pennsylvania Coal Operators' Association met in Clearfield to act on a request made by the policy committee of the mine workers of the district. That committee sought to have a joint conference called to adjust the scale for mining in accord with the demands made at the recent Du Bois conference.

The meeting was presided over by President B. M. Clark and, after the matter was thoroughly discussed, it was decided "to stand pat." President Clark announced that the action of the central Pennsylvania association was in line with the general policy of bituminous coal producers throughout the country. The increase allowed gives daymen $1.50 per day additional and to boys 82c. a day. These increases became effective on Aug. 16 and will continue during the balance of the contract period.

Representatives of 60,000 miners of District No. 2, United Mine Workers, met in convention in Du Bois, Pa., on Sept. 17, to discuss the course of action they would take in consequence of the refusal of the operators of the district to confer with the policy committee. Sentiment in favor of stopping work until wages are increased has grown since the demand was made in August and it is likely that drastic action will be taken. Owing to car shortage the miners are losing much time and they allege that they cannot make a living. Their contention seems to be not so much that the wage scale is too low but that the amount of money they are actually receiving is inadequate to meet living expenses.

Kentucky Miners Strike for Advance Above Central Competitive Wage Increase

THREE days of conference between mine operators and mine union officials at the Seelbach Hotel, Louisville, Ky., closed on Sept. 4 without result. The mine workers asked for an increase of $2 per day for daymen and 10c. a ton for miners with the same amount to be divided between loaders and machine men. The union finally offered to compromise for $1.75 for daymen if 10c. per ton was allowed the tonnage men.

This the operators would not grant though they were willing to give the $1.50 per day to the daymen, provided no increase was given to men working on a tonnage basis. They were, in short, willing to conform with the advance given in the Central Competitive field, but this did not satisfy the union leaders, who alleged that Kentucky operators were not paying the full Central Competitive scale and could afford to meet the wage paid by their competitors.

As a result 4,000 men laid off on Sept. 7. The strike is unauthorized and the men deny it is a strike. They term their "vacation" by the euphonious term "laying off." On Sept. 7 many mines that had been idle on the previous day shut down and some that had worked became idle. The strike, of course, is only in the union territory, which is known as District 23. This is in the western part of the state and includes Muhlenberg, Ohio, Henderson and Union Counties.

In Muhlenberg County approximately 2,000 workers failed to report, closing fifteen mines producing 14,000 tons of coal daily. Only two mines were operating in Henderson County, where 1,200 men were on strike. Approximately 1,000 were out in Ohio County, where only one mine was running. Reports from Union County are that half of the miners were on duty.

Black Diamond No. 1, in Muhlenberg County, which was closed down on Sept. 7, resumed the day following, the strikers returning, but Black Diamond No. 2, operated Sept. 7, was not running the next day, the men failing to show up. The miners who failed to report at the Hillside mine on Sept. 7 returned the next day. The Powderly mine was working but the Martmeick mine, owned by the same company, was closed.

Other Muhlenberg mines idle were Graham, Pacific, Mercer, Midland, Madison, Nelson, Browder and Kirk. Those working were Luzern, Powderly, Black Diamond No. 1, Crescent and Roger Brothers.

The Henderson County mines where the men were out were the two Southland plants, Backett, Jennings and Dixie. Lonnie Jackson, president of District 23, says that the men are justly dissatisfied, having always been paid about 20 per cent less than the Central Competitive scale. He declares that four of the larger operators are willing to accept the union's revised demands and that this has increased the discontent of the other men.

Alabama Commission Finds Mine Workers And Operators Equally to Blame

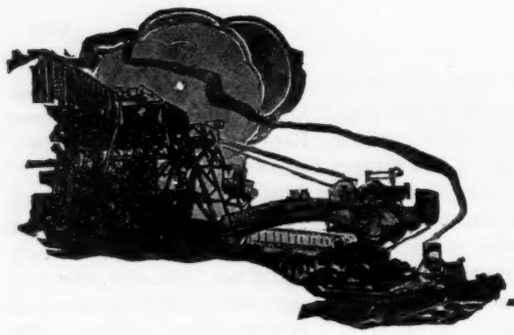
REPORTING on the dispute between mine workers and operators, the Alabama Strike Commission finds both parties equally responsible for present conditions in the mining districts of the state and that the public has been the only sufferer, the output having been limited by the dispute and prices having increased accordingly.

The report suggests control of the mining industry by the state and offers a bill creating a commission of three members to be chosen by the state Supreme Court, the commission to have legal power to summon witnesses and examine records. The decisions of this body, if created, would have the same weight as the verdicts of a circuit court.

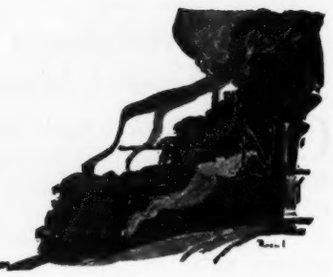
This verdict was rendered on Sept. 18 and Governor Kilby has announced his intention to have the bill introduced to the State Legislature now in session and promises to use his influence to have it enacted.

Alabama Manager and Two Deputies Shot; National Guard Is Called Out

GENERAL Manager L. M. Adler, of the Corona Coal Co., Corona, Ala., was shot from ambush and instantly killed, Sept 16, while traveling with Deputy Sheriffs Edgel and Brown in an automobile. The deputies were so severely injured that they will probably die. Sheriff Clark Guthrie, reporting that armed bands were gathering at Corona, Townley and other mining camps, said the situation was beyond his control and called on the governor to send troops. The governor complied and the same day six companies were called into service for duty in Walker and Jefferson counties under command of Brigadier General Robert E. Steiner, making his headquarters at Birmingham, with the expectation of shifting later to Jasper. On Sept. 18 five companies were on duty and two more were ordered to the scene of disorder.



Production and the Market



Weekly Review

Bituminous Production Declines—Labor Day Accumulation of Cars Enables Record Daily Loadings—Prices Are Firmer—Labor Situation Is Slightly Improved—Anthracite Miners Are Returning

PRODUCTION of bituminous coal shows a decrease for the week of Labor Day, 10,566,000 net tons being the figure given by the Geological Survey. This is a decline of 605,000 tons as compared with the preceding week. Observance of the holiday period caused an accumulation of empties on resumption of work. The per-day output rose accordingly to 1,994,000 tons, the highest attained since last January. Beehive coke production was the largest of any week since May. The total production is estimated at 439,000 tons, an increase of 11 per cent. Anthracite shipments for the week ended Sept. 11 were 546,000 tons, only about 70 per cent of capacity.

Car placements are better in some sections, but the general improvement was not up to expectations. Late reports indicate that more satisfactory conditions prevail and production is increasing.

Labor in the bituminous fields is showing more inclination to get down to business, due to recent local wage increases. The Alabama field, however, is badly crippled by the fight for recognition of the union, and western Kentucky also is handicapped by labor trouble. Prices have rallied somewhat, especially in the larger market centers. The slump in production, anthracite shutdown and a general buying for reserve stock are given as the causes for this advance.

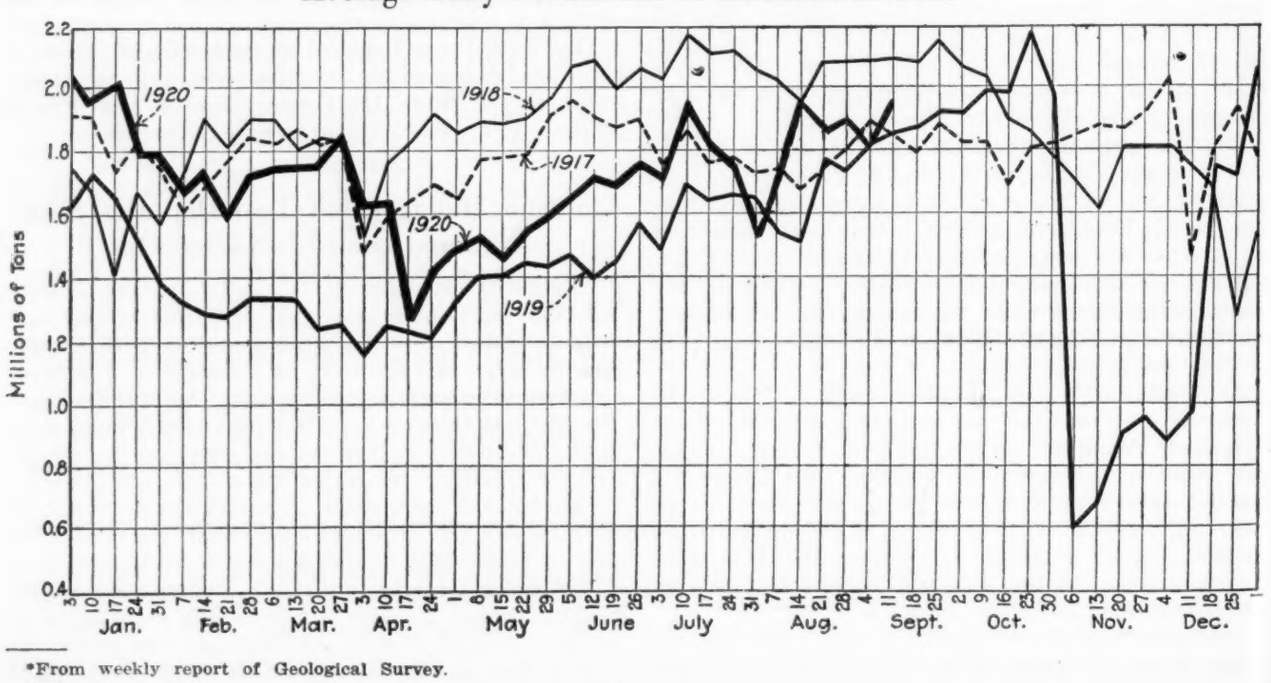
All-rail movement to New England increased to 5,044 cars, while shipments via Tidewater dropped to 261,000 tons. Exports also declined, 439,000 tons being the figure for the week. Cargo and fuel dumpings at the Lakes for week ended Sept. 18, were 1,007,833 tons, an increase of 122,000 tons over the preceding week.

Anthracite "vacationists" have largely returned. The Pittston and Shamokin strikers still number about 18,000 but other sections report a general return to work.

Lake Coal Dumped Season to Sept. 18
(NET TONS)

	Cargo	Fuel	Total
1919.....	16,906,106	789,472	17,695,578
1920.....	13,513,621	784,600	14,298,221

Average Daily Production of Bituminous Coal*



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Demand Is Distinctly Easier — Prices Governed by Other Markets—All-Rail Receipts Fall Off — Slow Loading at Hampton Roads—Retailers Far in Arrears on Anthracite Orders.

Bituminous—The trade is settling down to a dull market. There is very little request for spot coal. Buyers are willing to accept deliveries as long as they are on contracts made early in the year but otherwise there is lack of interest. Reserves have been accumulated to such extent and there continues so unfavorable an outlook for general business that no further upward swing in prices is looked for.

While prices are maintained on an average level well over $8 at the mines in Central Pennsylvania, it is clear that for the present they are being governed by markets other than New England.

Movement on contract, both all-rail and by water is keeping up to July and August levels. A good many orders placed at high prices have been cancelled, partly because shipment was not made within the time stipulated but also because contract coal has been coming forward in sufficient volume to meet requirements.

Car-supply in the regions is adequate for all needs. The shut-down in anthracite has had its effect here and there has not been a time in months when spot purchases could be shipped so fast. The New England roads are now in better shape than was the case in the spring and if rail movement is no greater than at present there will be fewer embargoes than heretofore.

It is understood here that the Interstate Commerce Commission will shortly cancel Order 11, but that Order 9, in favor of utilities, etc., will be renewed. In the face of present car-supply it is hard to see why the latter is necessary, but doubtless there is a good deal of pressure on the part of municipalities and government departments in order to keep down prices.

Loading at the Virginia terminals has not proceeded so smoothly the past week. Congestion at the piers due to heavy receipts of high-volatiles has interfered with despatch of boats coastwise. This will result in higher coal for New England manufacturers just at a time when market condtions are really much easier. Current receipts are of coal bearing the advanced tolls from the mines to Tide and the two items together, in many instances, may easily amount to $1.75 per ton. On top of this, the Shipping Board is seriously urging an advance of 75c. in rates coastwise, this largely on the ground of increased cost of coal. The new rate, if carried through, would mean $3.75 from Hampton Roads to Boston where but a few years ago there was offered a contract rate for a year that figured approximately 50c.

Current quotations of bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F.o.b. mines, net tons	$8.00@ 9.00	$8.75@ 9.50
F.o.b. Philadelphia, gross tons	11.60@12.72	11.35@13.25
F.o.b. New York, gross tons	12.10@13.00	11.80@13.75

Anthracite—The "vacation" of the mine-workers has a serious aspect for New England. The trade is eager to get news from the region, for stocks are extremely light and cool weather is coming on. Retail dealers in all parts of the territory are most apprehensive. With few exceptions, they have taken orders far in advance of their ability to deliver, unless mining is resumed in good volume the next 60 days.

Tidewater

NEW YORK

Anthracite Shipments Slow — Supplies Dwindle and Situation Looks Gloomy—Independent Quotations Advance — Bituminous Becomes Active Because of Anthracite Troubles—Prices Stiffen.

Anthracite—The shortage is becoming more pronounced daily. A negligible quantity of coal is coming forward and most of the docks are nearly cleaned out. The yards of the retail dealers are also showing the effects of the strike and already there is considerable study being devoted to the situation and as to what might be expected late this fall and winter.

The lack of shipments was extremely noticeable last week. Wholesale dealers had little to do except to tell customers they had no coal to sell. The little tonnage that did come forward was for the most part from the independent operations or from the northern coal fields where some mining was being done.

Even when the mines do resume operations it will be nearly two weeks before this market will receive coal. Meantime the retail dealers are delivering their remaining supplies in small lots. Reports received here at the end of the week were to the effect that the workers are gradually returning.

Some of the smaller independent operators are quoting their domestic as high as $15.25 and in order to get these sizes the buyer must place an order for some of the steam coals.

Steam is in strong demand and the stoppage of production has increased this. Birds-eye, which is seldom offered in this market is now being heard of. Buckwheat No. 1 was offered here at $6@$7.50 f.o.b. mines, quality considered. Quotations for rice were around $4.25 and barley close to $3.

Quotations for company coals, per gross tons at the mine and f.o.b. New York Tidewater, lower ports, are as follows:

	Mine	Tidewater
Broken	$7.60@$7.75	$10 21@$10.36
Egg	7 60@ 7 75	10 21@ 10.36
Stove	7.85@ 8.10	10.46@ 10.71
Chestnut	7.90@ 8.10	10.51@ 10.71
Pea	6.10@ 6.55	8 57@ 9.02
Buckwheat	4.00@ 4 25	6 47@ 6.72
Rice	3.00@ 3.50	5.47@ 5.97
Barley	2.25@ 2.50	4.72@ 4.97
Boiler	2.50@ 2.75	4.97@ 5.22

Bituminous—The market has taken a spurt and prices are advancing. Several reasons have been given for this sudden change but the most general opinion seems to be that it is due to the "vacation" taken by the anthracite miners and the increased demand for bituminous.

Shippers in this city sending orders to operators in the coal fields at fixed prices have been informed that better prices are being made on the ground. This has naturally had a tendency to advance prices. The return of the anthracite workers will, however, have a tendency to send prices down.

There is plenty of coal at the piers to meet all immediate needs. Shipments are coming in quite steadily, but in no great volume. Considerable coal is being taken by the public utility corporations some of which have good-sized tonnages in their bins.

Loaded boats are not so numerous. Alongside prices range from $14.50@ $16. There is a demand for Order 11 coal at $8.75 f.o.b. mine, while Pool 18 was quoted $13@$13.50 and Pool 10 at around $15.

Car supply was reported as improving, most mines getting 60 per cent or better of their requirements. Labor was better satisfied, having been assured that most operators would grant them increased wages.

PHILADELPHIA

Hard Coal Retail Trade Has Vanished — Little Coal Is Expected for 10 Days — Price Investigator in City — Bituminous Prices Very Firm, Despite Increased Car Supply — Tide Business Grows — Local Demand Fairly Well Supplied — Gas Coals in Strongest Demand.

Anthracite—Receipts about reached the zero mark this week. The dealers on the Reading Ry. have a little pea coal on hand, but deliveries of this have not been heavy enough to cover their overhead. The Pennsylvania R.R. dealers still have a fair amount of prepared sizes. Like all the other dealers they have no stove at all.

It is quite likely that the summer weather has tended to ease the public mind and the pressure on the retail

trade has not been at all strong. Orders are taken subject to price in effect when delivery is made, although it is not thought that there will be any change from the following schedule, which is fairly representative of trade prices: egg $14.50, stove and nut $14.80, and pea $12.50.

With the miners agreeing to return to work on the 17th there was really little production on that date, as it was believed that the men would finish out the week in idleness.

One of the Government departments called on the trade this week for information as to prices. Visits were made to both wholesalers and retailers for information as to the maximum prices now being charged. Most of the trade co-operated fully and it was quite common for them to invite the closest investigation of their records just as they stood in the offices.

Activity in steam trade is centered on rice and buckwheat. Of the former there is only a fair amount offering, although of the latter the big companies seem to be willing to accept orders freely. The prices ranged on rice from company $3.75@$4, and barley ran $2.25@$2.75 at mines per gross ton.

Bituminous—Despite better distribution of cars prices on all grades have persistently held up, and in some instances have shown an advance. Pool 9 is still out of the market and is not readily obtainable. Pool 10 has been moderately available at $9.50@$10. Pool 11 has been offered in somewhat heavier volume $8.75@$9.75, with major portion of sales around $9. Pool 18 is $8@$8.50, but with actually little demand.

The market is fairly well supplied with coal, at least consumers are able to go along without ordering much at the market price. A visit through the territory shows that industries are storing contract coal. Shipments of this kind seem to be on the increase.

In the iron trade the call is heavy, particularly for gas coals. Fairmont started out strong $9.50@$9.75, with little to be had, and advanced later at $10@$10.25. The market production of this coal is much reduced by heavy tonnages used by the railroads.

With domestic trade fairly well supplied it was natural that export business would increase. This week had seen a heavy tonnage loaded, with prices at Tide $14@$15. If the present rate of export continues, September will show better than 300,000 tons.

There has been a strong call by the glass trade, with the screened Pennsylvania gas coals bringing $12@$12.50 at the mines. For similar mine run the price is about $1.00 less. There is also the strongest kind of demand from the furnace trade for puddling coal running about 30 per cent volatile and the price has shown a tendency to soar, with most quotations from $10.25@$10.50.

In the spot coke trade Connellsville foundry is moving from $18.50@$19 per net ton at the ovens, with furnace about $18, and at times 50c. less.

BALTIMORE

Prices Advance Despite Counter Predictions—Car Supply Again Falls Off and Demand Increases — Hard Coal Very Scarce — Export Movement Is Fair.

Bituminous—After an excellent car supply since Labor Day, in which the run was at times around 100 per cent on both the Baltimore & Ohio and the Western Maryland R.R., there has come a new falling off in the supply. With the drop in car supply to around 65 per cent on the B. & O. R.R. came an increase in demand that has put new strength into the trading.

This has upset the many predictions that low prices of a few days ago were to be cut still further by the increased production which was meeting all demands promptly. The lighter run of cars on the Pennsylvania R.R. had made the market for those coals higher than for B. & O. R.R. coals, but recent events have put them back more on a level.

Prices have stiffened about $1 a ton for most of the B. & O. steam coals, with prospects of further raise. Best steam fuels, such as Pools 9 and 71, are quoted $10.25@$10.50, as against about $9.50 a week ago. Pool 10 coals are readily commanding $9.50@$9.75 a net ton f.o.b. mines, Pool 11 $9 and Pool 18 $8.50 and in some cases better.

The permit regulations are holding the Tidewater situation clear of congestion, and New England and export coals are moving fairly promptly, the number of ships astream being kept down to between 15 and 20 daily. The reserve in the pool is also held at between 1,400 and 1,700 cars daily for the most part. The export loading under permit is slower than during the big jam of a few weeks ago, but even at that around 140,000 tons were loaded on foreign bound ships here the first half of September, indicating that 300,000 tons or better would be the figure for the month in export movement.

Anthracite—Hard coal is becoming more and more scarce here. There is hardly any reserve in local yards and receipts are negligible. Coal men are growing more restive as consumers, many with orders long on the books, are now pressing them for coal.

No one is satisfied, although coal men assure their customers that they will take care of them in some way, even if apportionment of the coal to come through has to be resorted to.

Lake

BUFFALO

Bituminous Prices Slowly Sagging—Cancellations Show Consumers Have Supply—Cars Are Fairly Plentiful—Anthracite Supply Is Cut—Lake Dumpings at Minimum.

Bituminous—The market is weak. Shippers report lower prices and are now confronted with cancellations of high-priced orders. Consumers now have much coal offered $8@$8.50.

There is still some coal jobbed at big prices that was obtained as low as $3.50 on contract at the mines. The consumer is getting a good stock on hand as a rule. Shippers predict prices of $6@$7 in six weeks or so. Slack is hard to get, but mine run readily takes its place as a rule and prices do not differ as to size.

The miners are still seeking the operations that pay big prices and it will take a stand on the part of consumers to send them back to the mines that cannot now pay these prices for labor. They will come back as soon as prices drop a little further. The increasing piles of coal in consumers' yards make that readjustment certain before long, if other conditions do not forbid.

The car supply is no longer a menace to the trade. The anthracite shut-down has helped the bituminous car supply. Still the fall grain movement is just setting in and that may affect the car supply.

Anthracite—Supply has run down to less than half what it was before the miners went out. The Lake shippers continue to do a little loading. There are many published predictions of famine, but as a rule the trade looks for things to go on as before. The miners are apparently not in a mood for a determined fight.

Shippers generally refuse to buy the high-priced independent anthracite, though it is still offered at about $3 premium. A readjustment of prices to the consumer has been made by most retailers, which makes grate and egg to the curb $12.90, stove and chestnut $13.15, pea $11.10 and buckwheat $8.50.

Lake—Shipments have dropped to 42,300 net tons for the week and are now about at a standstill. The clearances were 23,800 tons to Duluth and Superior, 7,500 tons for Green Bay, 7,000 tons for Milwaukee, 3,000 tons for Portage, and 1,000 tons for Port Huron.

Freight rates are 60c. to Duluth, 70c. to Green Bay, 75c. to Milwaukee, $1.25 to Portage, and $1.50 to Port Huron.

Coke—Demand is good, but jobbers are not able to obtain much. The report is that furnaces are not getting what they want out of their contracts, the larger consumers being in the open market freely. Quotations are: $18 for 72-hr. foundry, $17 for 48-hr. furnace and $13.50 for low grades at the ovens.

CLEVELAND

Receipts for Lakes Decline—Chamber of Commerce Works Out Plan for Distribution — Utilities Board of Ohio Seeks Modification of Order 10.

Bituminous—Under the plan for coal distribution now being placed in operation by the Cleveland Chamber of Commerce Coal Committee, householders and other users of domestic coal are to continue to order the winter's supply in the usual manner. The committee proposes to see that retailers

obtain sufficient fuel to supply immediate needs of the city until the close of the lake season, when coal will be more plentiful. If sufficient coal is not obtained by dealers, they will be assisted in getting cars into their yards.

Under the recently adopted allocation plan which is retroactive to Sept. 1, the city will require 115 cars of coal daily. Receipts so far, however, show that the average is much less than that figure. Even if the full quota were to be delivered by operators, it is believed the city would not be saved from a severe shortage next winter. Each dealer will report daily the amount of coal received for heating purposes. These figures will be totaled by the committee to see if the minimum of 115 cars is being maintained.

Although Northern Ohio cities have decided to give the operators a chance to make good on their assurance that sufficient coal would be provided to handle the fall demand, the Ohio Public Utilities Commission is still urging the modification of Order 10. The Michigan commission has refused to join the movement, believing that coal supplies of that state would not be improved by changing the order.

Lake—Notwithstanding the stimulus of Order 10 and many evidences of better freight movements, coal receipts for the Lakes are lagging behind the record established prior to Labor Day. Shortage of cars and labor at the mines is the cause. Stocks at the Lake front are low. At the rate shipments are now coming forward receipts for September will fall short of those for August when the total was 4,408,788 tons. Shipments for the season up to the 11th of the month were less than 13,000,000 tons as compared with 16,331,581 tons for same period last year and 18,327,706 tons in 1918.

Retail prices of coal per net ton delivered in Cleveland are:

Anthracite—Egg $16@$17.50, chestnut and stove $16.25.

Pocahontas — Shoveled lump $16, mine run $12.50.

Domestic Bituminous—West Virginia splint $13.25, No. 8 $12, Millfield lump $14.50, cannel lump $15.

Steam Coal—No. 6 and No. 8 slack $12.60@$12.75, No. 6 and No. 8 mine run $13.60@$14.25, No. 6¾-in. lump $14.45.

MILWAUKEE

Increasing Receipts Encouraging Trade —Anthracite Outlook Good, but Soft Coal Supply Causes Anxiety — Prices Unchanged.

Receipts by Lake during the first half of the month exceeded those for the same period last year, but increase by rail is not as satisfactory as could be wished, and commercial bodies are making effort to secure a betterment of the rail supply.

The hard coal situation is fairly good and deliveries are being made freely. There has been a tendency on the part of heavy consumers to hoard anthracite, but nothing has been done to check the evil thus far, owing to the assuring supply and the fact that fully 60 per cent of the city's hard coal consumers have received their needs.

The bituminous outlook is causing considerable anxiety. It is asserted that there is plenty of soft coal being offered, but wholesalers are loathe to stock up, because of a lack of confidence in the maintenance of present prices.

There has been no change in the price schedule since the last report, and it is almost safe to assume that the peak has been reached. The outward movement of coal by rail keeps pace with the car supply. Between this steady drain and local deliveries the dock yards are not accumulating adequate stock piles.

Receipts by Lake for the season up to the middle of September aggregate 562,046 tons of hard coal and 1,286,670 tons of soft, against 617,780 tons of the former and 2,335,964 tons of the latter during the same period in 1919.

Inland West

CINCINNATI

Artificial Wave Brings Relief — Demand Continues Strong — Car Supply Shows Improvement — Profiteering Investigation Continues.

Coal men are getting enough fuel to satisfy all demands. What coal was denied the local trade by reason of the car shortage was partly made up by the arrival of large tows down the Ohio River, made possible by the creation of the second artificial wave of the season.

There continues a great demand for coal from all sources. It is next to impossible to get large supplies of hard coal and the finer grades of bituminous, due to the export business and the zoning system now in vogue.

As the cool days draw nearer, the public is placing orders for large amounts. Industrial plants are trying to get a reserve supply to stall off any possibility of shutdown.

The car supply continues to grow a little better, but is far from normal. Towns adjacent to Cincinnati are still short of fuel and likely will be unless there is a marked improvement in car supply.

The trade is interested in the talk of investigating alleged profiteering in coal sales and the trials to be held in the near future of coal men who have been indicted under the Lever Act. In Covington the Eastern Kentucky operators have brought suit against the Government to prevent prosecution under this law.

CHICAGO

Local Organizations Undertake Solution of Coal Problem—Heavy Demand Maintains Prices — New Firms Enter the Field.

The Chicago public is kept in a continual state of agitation over its coal problem. During the week, a statement appeared in the press to the effect that L. T. Orr, Chairman of the Chicago Real Estate Board Coal Committee, had said that unless heavy supplies of fuel are shipped into Chicago many homes and apartment buildings will be without coal during the coldest months of the season. The committee also recommends that the Interstate Commerce Commission continue for the time being the priority in favor of open top cars for coal mines. The Chicago Association of Commerce is also undertaking a campaign, aiming to arouse the public to a realization of its coal problem.

The market showed practically no signs of change during the past week or 10 days. The demand for all kinds of coal keeps up without abatement and the local market is flooded with anxious purchasing agents.

The usual wide range of prices prevailed during the week. Domestic is selling anywhere from $4.75@$8.50, while steam coals on the open market are $6.50@$8, all f.o.b. mines. The demand continues without any signs of weakening, except in the Northwest. Shipments from Kentucky and West Virginia, via Lakes, have been so satisfactory that the demand for Illinois and Indiana coals in the Northwest has weakened considerably.

COLUMBUS

Slight Decline in Production in Ohio Fields — Prices Are Still High as a Result of Bidding for Free Tonnage— Lake Trade Is Progressing Satisfactorily.

Little change has taken place in the Ohio coal trade during the past two weeks. Production is still largely restricted by car shortage although an improvement has taken place.

The output in the Hocking Valley and Pomeroy Bend fields is now estimated between 60 and 75 per cent. Eastern Ohio production declined to not much over 55 per cent of normal. Cambridge and Crooksville still report approximately 65 per cent car supply.

As a consequence of the Lakes priority a considerable tonnage is moving from Ohio and West Virginia to the Northwest. A slight falling off in dumpings at the Toledo docks as compared with previous weeks is reported, but this is due to congestion and lack of vessels. Lake bidding for tonnage ranges from $5.50 to $6.50 at the mines.

Retail dealers are hard pressed for tonnage to care for urgent orders. Quotations show a wide range. Hocking lump retails $8.50@$10.25, while Pomeroy lump is $9@$10.75. West Virginia grades retail $10@$11.50 and Pocahontas when obtainable sells from $12@$13.50 and even higher. Some Kentucky coal is also being sold from $10@$11.25.

Steam trade is becoming more active as a larger tonnage has been available during the past few weeks. Most of the larger users have sufficient coal to continue operations but have not been able to stock up. Public utilities are receiving sufficient fuel under priority rulings. Railroad demands are heavy.

Some labor troubles are reported from the Hocking Valley field. Loaders are now agitating for a higher scale to equalize them with day laborers, who were recently increased $1.50 a day. So the circle goes around and production continues to suffer.

Prices at the mines, of the principal coals used in Central Ohio are:

Hocking lump	$5.50@$8.50
Hocking mine-run	5.00@ 8.25
Hocking screenings	4.75@ 8.00
Pomeroy lump	5.50@ 8.50
Pomeroy mine-run	5.25@ 8.25
Pomeroy screenings	5.00@ 8.00
West Virginia splints, lump	6.00@ 8.75
West Virginia splints, mine-run	5.50@ 8.50
West Virginia splints, screenings	5.00@ 8.00
Pocahontas lump	7.50@ 9.00
Pocahontas mine-run	7.00@ 9.00

INDIANAPOLIS

Uncertainty Rules Local Market — Little Purchasing Being Done — Operators Contract for Outside Delivery— Free Coal Is Scarce.

Because of the uncertainty of just what price the Indiana coal commission will fix on the various grades of Indiana coal, the market throughout the state is somewhat shaky. The larger industries are buying on a short market and so far have shown little inclination to build up reserves against winter use. Domestic consumers are following the lead of the large users and the demand for the little quantity of free coal on the market has slowed up considerably.

In the meantime, operators are making all the outside contracts possible since the law, it is thought, will not be able to affect contracts made outside the state nor the distribution of contract coal. The contracts are being made at about the same prices that have ruled in the Indiana field for the past two months.

Jobbers state that because of embargoes, coal is not coming in from the East. They are also unable to get Kentucky coal because of strikes in that field, leaving the Indiana district about the only one left to work and in the Indiana field there is scarcely any free coal. There will be even less available if operators continue making outside contracts.

DETROIT

Bituminous Receipts Adequate for Current Requirements Only — Modification of Priorities Urged—Demand Is Active for All Fuels.

Bituminous — Supply of bituminous shows no improvement. Shipments are just about sufficient to meet requirements for current consumption of public utilities and industrial plants. Little or no excess supply is available for increasing the steam reserves or for stocking up retailers' yards.

The movement from West Virginia and Kentucky mines is limited almost wholly to consignments applying on long time contracts. Ohio mines are sending in a small amount of coal and termination of labor difficulties in Illinois and Indiana districts is making possible a larger supply from those fields.

Unless the Lakes and New England priority regulations are modified in the near future, there will be a troublesome shortage in Michigan this winter. This aspect of the problem was given consideration Sept. 15, at a conference in Columbus, Ohio, between public utility commissioners from Michigan, Ohio and Indiana. The course of action has not been fully decided, though an appeal to the Interstate Commerce Commission in behalf of the Middle-Western states is being considered.

Anthracite—Supplies of anthracite are very low and receipts are small. It will be necessary to substitute bituminous or coke as a winter fuel in many Detroit homes, as conditions encourage no hope that hard coal will be available in adequate supply. Some of the dealers report that a small amount of anthracite is coming from mines of independent operators. The price to consumers ranges as high as $20 on prepared sizes.

ST. LOUIS

Labor Situation Is Better—Car Supply Tightens—Little Coal Being Accumulated—Prices Are Firmer—Outside Demand Is Strong.

Very little storage coal is being accumulated and dealers experience difficulty in supplying their trade. Steam situation outside the city is in bad shape. Public utility plants are running short, while receipts from west of the river continue to decline.

Labor troubles are quieting with the exception of small local disturbances, but the outlook is not good. Car supply is tightening again, 30 to 50 per cent placements being obtained during the past week.

Railroads are absorbing heavy tonnage. Contracts have recently been made for shipment to southern market as far as New Orleans, while northern and eastern points continue to take everything available. It is understood the City of Chicago has just contracted for a large tonnage from a concern here.

There is no change in domestic prices. Standard and Mt. Olive prices for St. Louis shipment are $4@$5. For outside delivery, prices are $6@$8.50 on all sizes. Carterville prices range $4.50@$5.50 among the big operators, but some are getting as high as $8@$9. Similar conditions obtain in the Duquoin field, though most of that coal is going on the open market.

There is no anthracite coming in, but a little smokeless is moving through, with some coke from Alabama. No Arkansas coal is available.

South

BIRMINGHAM

No Improvement in Spot Coal — Production Increases with Better Car Service—Labor Conditions Are Better.

There has been no improvement to meet the demands of spot buyers. Some small utilities that depend on the spot supply are in somewhat straightened condition. Railroads are confiscating heavily.

The demand for domestic is strong, there not being enough of this grade mined to meet contract obligations of the mines. No stocks have been accumulated and consumers are making heavier inroads on the supply in yards.

Up to the last few days the car supply on the Southern Ry. has been very poor, but some relief has been noted this week. Other coal-carrying lines have furnished a fair car supply.

Coal production for the week ending Sept. 11 (the first period affected by the general strike) shows a loss of only about 8 per cent as compared with the previous week. Pay days and Labor Day were responsible for a heavy loss in production in addition to the car shortage.

Reports indicate that very few miners have joined the union since the general strike call, the greatest loss of labor being due to intimidating practices of union sympathizers. The indications are that next week will bring about a noticeable break in the ranks of the strikers. The organizations at practically every large mine in this field are intact and no interest is being manifested toward affiliation with the union.

LOUISVILLE

Market Slightly Softer on Eastern Kentucky Coals—Demand Is Strong— Better Prospects for Retailers' Supplies—Car Supply Is Still Poor.

The market is easier on Eastern Kentucky coals due to lighter buying for export and low prices quoted by utilities. It is claimed that assigned-car coal has slumped from $9.50@$5.50 for gas mine run.

Some Eastern Kentucky coal is moving through Savannah, but practically none through Charleston or the Virginias at this time. There is a much better Southern movement, due to the Alabama strike, some big industrial consumers in that district placing large orders in the Kentucky fields.

With by-product plants and general utilities filled up with Eastern Kentucky coal it is claimed that the market will again be in shape to take care of domestic and general industrial business. However, operators are not inclined to screen coal at this time.

Reports have been received of Eastern Kentucky gas mine run being offered at $8 a ton, but none can be had at the price. It is claimed that New England is now offering but $5, and some Southern districts $8.

Local coal men doubt that coal will sell for any such low prices, in view of the export situation and the fact that retail yards are empty, along with a continued shortage of cars. However, it is pointed out that much of the long hauling has been handled, and that cars will make better time on shorter hours to the central districts.

Quotations on Eastern Kentucky coal at mine are, gas mine run $9.25@$9.50, block $10.25@$10.50, non-gas or steam $9@$9.50.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Car Supply Little Increased — Buyers Are Eager, and Market Is a Shade Higher—Lake Shipments Are Ample.

Production of coal in the Pittsburgh district continues to be limited by car supply in general, though in the case of not a few mines the limiting factor is the number of hours per week the men are willing to work. Car supplies have improved but little since the first of the month, and there certainly has not occurred as much improvement in the period as was expected. Other lines of industry report very decided improvement in transportation conditions since Sept. 1, the date on which the railroads began to earn their revenues themselves.

At this writing no formal order has been received continuing the Lake coal priority, but it is understood that the necessary formalities will occur. Operators express the opinion that the Northwest will be sufficiently coaled for the winter, although the movement will not equal what was asked for.

Coal consumers show remarkable willingness to pay high prices for coal, and the market has stiffened a trifle further in the past week. A theory proposed is that while coal deliveries have been increasing somewhat, the progress of the season has curtailed the expectations of some consumers that materially lower prices were about to prevail, thus bringing them into the market for coal for storage.

While prices cannot be quoted very closely, sales being made at so wide a range, the market in general may be regarded as about 25c. higher than a week ago. Spot coal ranges $8 25@$9 for steam grades and $9@$10 for gas and by-product, per net ton at mine, Pittsburgh district.

CONNELLSVILLE

Closer Bargaining on Spot Coke—First-Half Contracts Offered — Quotations Show a Wide Range.

Furnacemen are making a more determined effort to get such spot coke as they need at lower prices, while operators are making an equally determined effort to hold prices up. Some of the operators are in better position than others to hold their coke or apply it on contract, the result being usually rather a wide range of quotations, with consumers nibbling only at the lower offers. On most days of the past week limited quantities of spot furnace coke have been available at $16.50, and all such offerings have met with heady sales, but coke held at $17 and higher has generally been neglected. Spot foundry coke has held up somewhat better, but both grades may be reported off 50c. from a week ago.

Interest in first-half contracts for furnace coke is beginning to be manifested, but buyers and sellers who have shown their positions are far apart and it is doubtful whether any business will be closed in the near future. A large producing interest has been approaching regular customers with an offer of first-half furnace coke at $14, a quotation that has not aroused much interest. So far as can be ascertained no counter bids have been made. There is reason to think that some consumers would cover at least part of their requirements if they could do so at $10. In general, the theory of furnaces seems to be that the pig-iron market is going to show less favorable signs soon and may thus tend to temper the price views of coke operators.

The spot market is quotable $16.50 @$17 for furnace and $18@$18.50 for foundry coke, per net ton at ovens. On contract coke there are asking prices of $14 for furnace and $15 for foundry, but no quotable market.

The *Courier* reports coke production in the Connellsville region in the week ended Sept. 11 at 217,680 tons, an increase of 21,090 tons.

UNIONTOWN

Embargo Closes Eastern Market—Foreign Market for Coke Develops — Car Placements Show Improvements—Some Congestion at Yards.

Coke in furnace grades is selling in the local market from $16.50@$17.50 per ton. Byproduct coal commands $10, with Pool 34 listed at $10.50 on the Pennsylvania and $9.50@$10 on the Baltimore & Ohio. Pennsylvania R.R. and Baltimore & Ohio R.R. steam grades are $9 and $8.50 respectively.

Coke price was depressed by the Western Maryland embargo of Lake Erie car shipments via its lines. This arbitrarily closes the Eastern markets to coke originating as Lake Erie loads and forces diversion of the now considerable Lake Erie tonnage into the valley markets of the West and Northwest. Here the prevalence of the by-product oven necessitates a price reduction. Lake Erie coke is running $16.50 @$17 while that on other roads is $17@17.50.

Brokers this week had inquiry for a large cargo tonnage for export. This added instant tone to a flagging market and it is likely the new export field will be at least partially explored by local producers. Policy has been to ignore inquiries for foreign destination as long as blast furnace customers were buying. As domestic needs approach full supply the foreign market is hailed as a distinctly favorable factor in price fixing.

Car placements were good last week. Supply of cars for coke exceeded those for coal loading. Lack of Pennsylvania R.R. motive power continues the congestion of yards and tracks. Rainey had been cleared during the week to less than 100 loads, but Youngwood continues with an average of 1,500.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL

	1920 Week	1920 Calendar Year to Date	1919 (a) Week	1919 (a) Calendar Year to Date
August 28*b*	11,383,000	347,406,000	10,443,000	297,713,000
Daily average	1,897,000	1,698,000	1,741,000	1,455,000
Sept. 4*b*	11,171,000	358,577,000	9,651,000	307,364,000
Daily average	1,862,000	1,703,000	1,821,000*d*	1,459,000
Sept. 11*c*	10,566,000	369,143,000	11,046,000	318,410,000
Daily average	1,994,000*d*	1,710,000	1,841,000	1,475,000

ANTHRACITE

	1920 Week	1920 Calendar Year to Date	1919(a) Week	1919(a) Calendar Year to Date
Aug. 28	1,818,000	57,530,000	1,941,000	54,619,000
Sept. 4*b*	1,084,000	58,614,000	1,349,000	55,968,000
Sept. 11	546,000	59,160,000	1,408,000	57,376,000

BEEHIVE COKE

United States Total

Week Ended Sept. 4 1920 *c*	Week Ended Aug. 28 1920 *b*	Week Ended Sept. 13 1919	1920 to Date	1919 *a* to Date
439,000	396,000	445,000	14,890,000	13,692,000

(*a*) Less one day's production during New Year's week to equalize number of days covered for two two years. (*b*) Revised from last report. (*c*) Subject to revision. (*d*) Week of Labor Day holiday.

Coke production is increasing, last week a total of about 220,000 tons being made. Recent liquor raids in Uniontown promise to suspend the depressing influence of sale of intoxicants to labor. Had not the embargo cut off Lake Erie cars from Eastern markets the production of coke would have been extremely satisfactory.

FAIRMONT

Car Supply Is Excellent—Lake and Tidewater Shipments Are Heavy—Further Price Decline Is Seen.

Time lost due to Labor Day holidays was largely made up during the balance of the week because of a very excellent car supply. By the middle of the week more miners were at work and a big dent was made in the supply of cars that had accumulated on Wednesday.

The increased car supply made for a larger movement of coal, although so many operators had failed to fill their quotas of Lake shipments that toward the end of the week the Baltimore & Ohio R.R. was confiscating coal for Lakes. As soon as that was resorted to, however, some shippers began to send more tonnage to the Lakes. Consignments to Tide were running larger in volume than during previous weeks, some of the coal so shipped, however, being for New England under Order 11. While export permits were rather hard to secure yet toward the end of the week this movement was growing in volume.

There had been no further softening of prices in northern West Virginia during the week but larger production and a somewhat limited export business rather presaged lower prices.

NORTHERN PAN HANDLE

Production Decreases—Lake Shipments Are Heavy—Prices Slightly Lower—Labor Conditions Are Better.

Production for the period ending Sept. 11 was somewhat less than during the previous week. Mining of coal was generally suspended on Labor Day so that operators had only five days of production during the week. Car supply in the district was not equal to that of the previous week. As a result, very little coarse coal was left for commercial shipments after Lake requirements were met.

While the general scale of prices was somewhat lower than during preceding weeks the heavy Lake demand and the scarcity of coal for commercial shipment tended to stabilize prices.

Such coal as was produced was moved without serious delay, no congestion being reported at any point. Labor conditions were considered as being generally satisfactory, although mines were still short of enough men.

Eastern Ohio mines were laboring to some extent under a transportation handicap, the supply hardly being up to that observed during the period ending Sept. 4. The Lake movement was large, however, and most mines were meeting this requirement.

Middle Appalachian

KANAWHA

Labor Day and Poor Car Supply Curtail Production — Lake Shipments Are Heavy — Market Softens — Shippers Protest New England Priority.

So far as reported no coal was mined in the Kanawha region on Labor Day. Production was much under that recorded during previous weeks, not only because of Labor Day but also due to an extremely poor car supply. While it is true that loadings in the region were fairly large on the two days following Monday, that was only because there had been no occasion to use cars supplied on that day. After that, the car supply dropped to about 45 per cent and remained there for the balance of the week.

While there was a movement to Tidewater for export there was said not to be so heavy a demand as obtained during a part of August. Producers were very reluctant to make shipments to Tidewater for account of New England. Lake movement reached fairly large proportions for a time during the week. Kanawha operators urged a further suspension of Order 11 but received no encouragement from the Interstate Commerce Commission.

Not more than $9 was offered for export and coal for inland points was about $7. While eastern buyers for the most part were out of the market, yet there was ample market for all the coal produced, owing to numerous priority orders and to heavy contract requirements.

LOGAN AND THACKER

Logan Makes Record Production for the Year—Williamson Labor Situation Quiet—Better Car Supply Is in Prospect—Prices Are Lower.

Production was affected to a less extent in this territory by a holiday than in any other part of the state, largely because fields are still operating on a non-union basis.

Not only was there six full days of production in the Logan field in the period ending Sept. 11, but this was the banner week of the year, the output reaching a total of 250,000 tons.

There was a promise that production would be even better for the week ended Sept. 18, indications pointing to an increased car supply. Lake shipments were running much larger, reaching almost 30,000 tons during the first half of the week. It was possible to ship to Tidewater during only the first part of the week as high-volatile coal from points west of Logan was embargoed during the latter part. Prices were not quite so high as they had been during the previous week, the average quotation on export and inland coal being $7 and spot market about $9.

While one coal company, dominated largely by Columbus capitalists, is said to have signed the union scale in the Williamson field, yet there were no other defections from the ranks of the operators and conditions remained practically unchanged. There were no disturbances during the week, due to the continued presence of Federal troops. Production continued at the rate of between 50,000 and 60,000 tons.

The strike loss was still running over 100,000 tons a week. It is estimated that since the beginning of the strike there has been a loss in production of approximately 1,000,000 tons in the Williamson field alone.

NEW RIVER AND THE GULF

Car Supply Continues Inadequate — Much Coal Goes to Tide — Market Declines Further — Export Prices Are Leading.

A poor car supply in both the New River and Winding Gulf regions and idleness incidental to Labor Day reduced the output much below that obtained in preceding weeks. Prices also had declined somewhat.

While of course the Labor Day idleness caused a loss in production in New River field, yet the loss was not more serious than that caused by an acute shortage of cars throughout the week. There was not a production of more than 15,000 tons a day during the last four days of the week.

Tidewater terminals claimed the larger part of the production. Although Order 11 was again in force, New England shipments were not resumed to any appreciable extent. At the same time Lake shipments and consignments to inland west points were rather slim.

There was less avidity on the part of buyers to secure coal at any price, owing to the general downward trend of the market. However, there was an outlet for all coal mined, much still being exported.

Difficulty in securing cars also curtailed production in the Gulf region during the greater part of the week. Mines dependent upon the Chesapeake & Ohio R.R. had only a 50 per cent supply during most of the week. Conditions were little better on the Virginian Ry.

VIRGINIA

Production Slumps — Prices Recede Further, Although Output Is Easily Marketed — Wagon-Mines Obtain New Ruling.

A production of 117,596 tons for shipment was the best the mines in Southwest Virginia were able to do in the period ending Sept. 11, owing to a partial cessation of operations on Labor Day. The tonnage represents 67 per cent of full time capacity, in addition to which 30,000 tons were produced for use in the ovens. There was a total loss of 56,000 tons, 27,000 of which were lost because of an inadequate car supply. In addition, there was also a loss of 13,000 tons or 7 per cent because of a labor shortage. Power disability cost 15,000 tons or 9 per cent, the power shortage, however, being confined to mines on the C. C. & O. R.R.

Production had entirely ceased at

wagon mines, owing to the continuance of Order 14, wagon mines under this order being unable to secure any open top cars. The issuance of Service Order 17 providing for car placements where facilities enable 24-hr. loading of empties will materially help the wagon-mine operations.

While miners were working with a fair degree of regularity, few mines had a full complement of men, that being responsible in part for the loss from a labor shortage.

There was a further recession of prices in the Virginia fields though the demand was still more than sufficient to take care of all the coal produced.

POCAHONTAS AND TUG RIVER

Production Again Declines—Car Supply Is Poor—Delay at Ports Curtailing Future Car Supply.

Labor Day made a perceptible difference in the production of mines on Norfolk & Western R.R. in both the smokeless fields for the week ended Sept. 11. At the same time a car shortage in evidence throughout the week cost mines about one-fifth of their usual working time and the indications were that the car shortage would be more acute during the next week.

There was a reduction of 84,350 tons of coal in the Tug River region. Mines as a whole lost about 20 per cent working time because of car shortage. Owing to lack of boats at Lambers Point and Sandusky Lake docks there was considerable delay in unloading cars, that being responsible in part for the inadequate transportation facilities available.

The recent modification by the Interstate Commerce Commission of the order relating to the use of open-top cars, which permits 38-in. open-top cars to be loaded with commodities other than coal, is also contributing to the car shortage.

Labor Day idleness at many mines was responsible for a rather material reduction of output in the Pocahontas field during the week ending Sept. 11, fully half the mines being idle on the legal holiday. To the decrease caused by holiday idleness should also be added that caused by a growing scarcity of cars manifest during the week. It is estimated that not more than an 80 per cent car supply was furnished. Prospects were not as encouraging for a good supply of cars for the next weekly period as has been the case during the preceding weeks.

While there was a large movement of coal to Tidewater, much of it for export, yet dumpings there were rather slow, so that equipment was not being released for use again as promptly as was necessary in order to keep up the supply of cars.

EASTERN KENTUCKY

Car Supply Improves Slightly — Production Loss Attributed to Labor Day — Export Is Embargoed— Good Movement Westward.

But for the intervention of a holiday it is believed that there would have been increased production in the Eastern Kentucky fields. With miners in many instances observing Labor Day, not so much coal as usual was mined. Production at Chesapeake & Ohio R.R. mines in eastern Kentucky remained at 110,000 tons or 47 per cent, there being a loss of 122,000 tons. Car shortage counted largest in the loss, cutting down production to the extent of 102,000 tons or 44 per cent. In that respect, however, losses were no heavier than had been the case during the previous week. There was an increase of 3 per cent in the loss from general causes.

Inasmuch as all high volatile mines west of St. Albans, W. Va., were debarred from the export market, no coal was shipped to Tidewater, nearly all of the output finding its way to western markets, including Lake points though there appeared to be less coal shipped for Lakes than had been the case during the previous week. On Labor Day no coal was shipped to the Lakes, either from the Big Sandy Division of the C. & O. R.R. or from the Sandy Valley & Elkhorn mines.

Middle Western

WESTERN KENTUCKY

Strikes and Car Shortage Holding Down Production — Labor Situation Is Very Unsatisfactory — Prices Are Slightly Higher.

There has been a deadlock for the past few days between Muhlenberg County operators and the miners union, resulting in practically all mines in that county being down, with an additional number in adjoining counties. Production of the field has been reduced about 33 per cent on the capacity basis of figuring. Operators agreed to an increase of $1.50 a day for day workers, as in Indiana and Illinois, but the union is holding out for increase to tonnage men. The operators, after several conferences, have taken the matter up with President Lewis, asking that the men be sent back to work, as the tonnage argument is held to be unauthorized.

Reduced output in these counties has not affected production of the field as a whole, as other mines that are working are able to take all cars offered, resulting in 76 to 80 per cent car supply.

The Frankel Coal Co., one of the smaller operating companies and one other, are reported to have given in to the strikers, resulting in their being ousted from the West Kentucky Operators' Association. Other operators are standing firmly.

There is a good demand for production, and mines are finding a ready market in various districts. Prices are slightly higher in the field in spite of the softness in other fields.

Quotations show lump coal at prices ranging from $8@$8.75; mine run, $7.50@$8; screenings, $7@$7.75. In fact some screenings are reported to be selling at $8 a ton, f.o.b. mine.

MIDWEST REVIEW

Market Is Strong—Railroad Fuel Market Is in Queer Position—Labor Situation Is Not Satisfactory.

The market has been very strong for some time past and unless all surface indications are wrong, it will continue in this condition for the balance of the season.

Nearly all the big industries are in the market, and buying steam coal in small lots at prices varying from $6.25 up to $8.50, according to grade and quality. No new contracts have been let, nor have any large orders been placed.

Those railroads who are fortunate enough to have subsidiary coal corporations are getting all they need and are in a position to produce more than they require, almost any time. These roads are not able to dispose of their surplus to the railroads in actual need, because of a ruling or law put into effect some time ago which prohibits a railroad from disposing of its coal to anyone but itself. It is understood the Chicago & North Western R.R. is in a position to produce much more coal than it actually uses, but on account of this ruling it is unable to come to the assistance of some of its competitor railroads, who are actually in need of coal, and who are buying daily on the open market.

The labor situation does not show any sign of great improvement. Small and unimportant strikes are reported nearly every day. For instance, one of the larger mines in the Peoria district is out on a strike over some trivial matter.

Southern

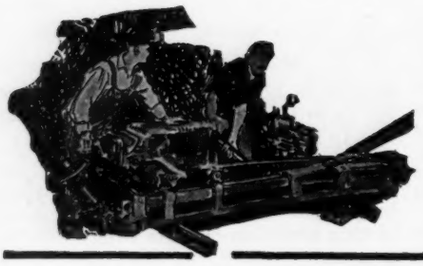
ALABAMA

Union Organizers Are Very Active—Intimidating Tactics Used — Strike Losses Are Reported Small.

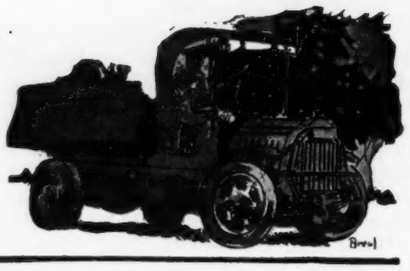
The United Mine Workers of Alabama District 20, who were called out on general strike in an effort to force recognition of the union and negotiate the so-called "Blue Book" contract, are very active in their efforts to organize this field. However, it is claimed by coal operators that not more than 2,000 additions have been made to the ranks of union men already on strike—many since March—and that the total now out will not exceed 7,000 in the entire field.

The places of many of the strikers have been filled and production would closely approximate normal if cars were available for loading. With the exception of possibly two or three small mines, every colliery is running and a steady gain is being shown in production and working forces.

The action of union mine workers or sympathizers in firing upon trains transporting workers to and from the mines, the dynamiting of houses, and other incidents of lawlessness are tending to intimidate labor to some extent.



Mine and Company News



ILLINOIS

Minonk—Fire has destroyed the tower at the W. G. Sutton coal mine, entailing a loss estimated at $25,000. Besides the tower, considerable machinery was destroyed.

Springfield—Transfer of the property of the Pittsburgh Coal Co. in Sangamon, Macoupin, Montgomery and Bond counties, to the Illinois Coal and Coke Co., has been announced. The consideration is said to have been one million dollars. The Montour mines, north of Springfield, and those at Virden and Girard, together with all equipment and 25,000 acres of coal land adjoining, are included in the transfer. The present output of about 30,000 tons a month will be increased by the new company, it is said, and the shaft at Auburn, which has been sealed for several years, will be reopened.

Marion—After being closed down for sometime, the plant of the Vulcan Coal Co. will be opened up and operated by new owners. The mine was recently purchased by Noah Payne of Marion and Thomas Doyle of Benton, two well known coal men. This is a slope mine and the new owners announce that owing to the high price which is being paid for coal of the grade mined at this place, they will remodel and repair the plant and make it into one of the most uptodate slope mines in the state.

Duquoin—Mine No. 5 of the Jupiter Coal Co., which formerly operated at this place, was recently bought by the Boehmer Coal Co., of St. Louis, and is rapidly being re-equipped with new machinery. The plant was operated for several years and at one time was one of the large producers in this part of the country. Soon after the deal had been made, William H. Greenwood, a well known coal operator, was appointed superintendent of reconstruction work. A new switch is being laid from the Illinois Central R.R. to the mine, and new hoisting engines, shakers-screens, boilers, etc., are being rushed to the site as fast as possible. Several of the buildings which were old and useless were torn down and rebuilt. When this mine is again in operation, a miners' train will be operated daily to convey the miners to and from their work.

INDIANA

Shirkieville—Articles of incorporation have been filed by the Vermillion Coal Co. The company is capitalized at $500,000 and will do a general coal mining business. The directors are A. D. Spears, Albert R. Milward and Henry S. Pinson. All three directors are well known men in the western part of Indiana and all have had experience in operating mines.

Sullivan—A deed for $1,032,775, one of the largest ever recorded in Sullivan County, was filed recently, transferring all the coal property of the Consolidated Indiana Coal Co. to the Templeton Coal Co. The deed contains 213 descriptions and includes the Peerless and Glendora mines and all the coal land, buildings, tipples, track and equipment owned by the Consolidated company in the county. The Temple corporation is composed principally of Terre Haute persons.

KENTUCKY

Louisville—Recent incorporations include the following: Forks Elkhorn Coal Co., at Pikeville, with a capital of $32,000, by W. B. Taylor, Luther Damron and J. H. Adkins; Holley Collieries Co., at Ashland, with a capital stock of $150,000, by S. S. Porter, Dr. M. M. Collins and Edward Holley; Elmer-Elkhorn Coal Co., at Allen, capital $50,000, by Elmer E. George, Gilbert V. George and Arthur D. George; Big Buck Coal Co., at Middlesboro, with a capital stock of $25,000, by J. T. Evans, Shelton Evans and Arthur Gent; Adamson Coal Co., at Jenkins, capital of $60,000, by H. L. Burpo, J. M. Moore and John W. Adams; Brooking Coal Co., of Pineville, with a capital stock of $25,000, by A. H. Brooking, John M. Green and P. T. Cairns.

The Frankfort Elevator Coal Co., at Frankfort, has filed amended articles of incorporation increasing the capital stock from $18,000 to $100,000.

Reports from Whitesburg are to the effect that the Old Colony Smokeless Coal Co., of New York, has paid a half million dollars for the new mining plant of the Dwale Coal Co., on Beaver Creek, Letcher County, and that the company plans additional purchases.

McDowell—The Liberty Coal Corporation increased their capital stock from $100,000 to $300,000. Extensive improvements will be made. Already the construction of many houses has been started.

MARYLAND

Pekin—The Maryland Coal Co., Munsey Building, Baltimore, Md., is planning for extensive operations in coal lands in this vicinity. It is reported that three mines with necessary airways will be opened.

Frostburg—The tipple of the Hillcrest Coal Co., near Kantnet, broke down recently under a heavy load of cars and the side track was crushed. The accident will interfere with loading two weeks. The damage is about $2,500.

MONTANA

Helena—With reduced carload rates on coal from Red Lodge, Bridger, Joliet, Fromberg, Bear Creek, Belfry and Golden, Montana coal operators will stimulate production and go after business in Minnesota and Wisconsin, according to officials of the Montana railroad commission.

The new rate was sought by the Northern Pacific R.R. and was approved by the Interstate Commerce Commission. The new tariff gives a thorough rate instead of a combination of local rates.

NEW JERSEY

Newark—The Burnrite Coal Co. has filed articles of incorporation, with a capital of $3,000,000, to manufacture fuel briquettes and kindred products. Property has been acquired and plans are being prepared for the erection of a new building. The company has also incorporated a subsidiary organization, to be known as the Burnrite Coal Securities Corporation.

NEW MEXICO

Gibson—The Gallup-American Coal Co. have decided to develop their coal properties by means of shafts sunk in the basin, discontinuing the present slope operations when the shaft mines are producing the desired tonnage. The new shafts will be approximately 800 feet deep. Sinking operations have already commenced. The Allen & Garcia Co. of Chicago have been selected to design and construct the plant.

NEW YORK

Buffalo—Capital stock of the North American Coal & Coke Co., W. E. Auld, president, is to be increased from $50,000 to $150,000. Branch offices have been established in Montreal and Pittsburgh. The company has an option on a coal mine in the Pennsylvania bituminous district and official inspection of it is in progress.

OHIO

Columbus—The Pittsburgh Coal Co., through its Columbus office, has opened a mine in the Big Sandy district of Kentucky under the name of the Pike-Floyd Coal Co. The mine is being op-

erated and the coal is being stored as the switch from the C. & O. R.R. has not been completed.

The Morrisdale Coal Co. has been chartered with a capital of $200,000 to develop a mining property in West Virginia. The incorporators are E. F. McManigal, R. B. Cuthbert, E. M. Marquard, E. H. Davis and D. A. Evans. The company will be organized in the near future.

Pomeroy—The Pomeroy & Hocking Coal Co., which was chartered several weeks ago with a capital of $250,000, has been organized by the election of Calvin Essex, president; J. A. Stalter, vice-president and Fred Essex, secretary. Completed plans for the company's operation of a large tract in the Pomeroy Bend field will be announced in a few weeks. The product will be sold through the Essex Coal Co., of Columbus.

Cleveland—The Buckhannon Valley Coal Co. has been incorporated with a capital of $100,000 by J. H. Cox, R. B. Burnside, R. S. Rogers, G. R. Johnson and C. W. Sutton.

Steubenville—The United States Coal Co., one of the largest in Jefferson County, is planning for the development of its coal property, comprising about 5,000 acres of land, in the vicinity of New Alexandria. Two or three shafts will be sunk and a 3-mile spur from the Wabash-Pittsburgh Terminal R.R. will be built.

OKLAHOMA

North McAlester—The North McAlester Coal Co. has increased the capital stock from $50,000 to $100,000. This company plans to greatly enlarge its business.

Henryetta—The McGennis Coal Co. has been organized with a capital stock of $75,000. The company will conduct a wholesale and retail coal business.

PENNSYLVANIA

Greensburg—Three men were killed, two seriously and a score of others slightly injured in a fall of slate in the Whitney mine of the H. C. Frick Coke Co. at Whitney, 10 miles northeast of here. All were miners.

Scranton—Plans are being considered by the Scranton Coal Co., for the rebuilding of its Briggs breaker engine and fan houses, recently destroyed by fire, with loss estimated to be $200,000.

Pittsburgh—The Hillman Coal & Coke Co. of this city is preparing to electrify its Isabella, Thompson No. 2 and Tower Hill coal and coke plants in Fayette county, all the power to be furnished by the West Pennsylvania Power Co. The Isabella plant, at Hillcoke on the Monongahela River and Monongahela R.R. is now equipped with electricity on the inside for hauling, cutting and pumping, the power being furnished by their own steam and power plant at the mine. The boilers and engines will be replaced by motors. The Thompson and Tower Hill plants, near Republic on the Monogahela R.R. are operated by steam and compressed air. These plants which are among the largest in the Connellsville coke region, will get their supply of current from the Connellsville station of the power company. It will probably take a year or more, to complete the installations, which are expected to be modern in every respect and the best of their kind.

TENNESSEE

Nashville—The Slate Creek Coal Co., a Delaware corporation, has filed notice of a change in name to the Buffalo Cove Coal Co., and has increased its capital from $1,500,000 to $3,000,000, for increased operations.

TEXAS

Dallas—The City Fuel Co. has been organized to conduct a retail coal business. The company is capitalized at $50,000 and the incorporators are L. G. Waskom, E. D. Balcom and B. J. Jones.

WASHINGTON

Centralia—Mining engineers, who have been employed for several months in making surveys of the coal deposits adjoining Bucoda, estimate that there are close to 20,000,000 tons of high grade lignite coal in the immediate vicinity. Operations will shortly be under way for the reopening of these mines.

Miles—An 8 to 10-ft. vein of solid coal was struck by the incline shaft of the Chinook Coal Co. on the west side of the former Spokane Indian reservation near Detillon Bridge. This newly opened field is about 55 miles northwest of Spokane in the Spokane River Valley, and judging from this discovery with the outcroppings in other parts the coal deposits extend westward from the foot of the Deer Trail Mountains to the Columbia River, and from Miles on the Spokane River to Hunter, or above, in the upper Columbia Valley.

WEST VIRGINIA

Beckley—Instead of having been sold to New York interests the Ingram Branch Coal Co. is under option to a coal concern with headquarters in Sweden. So far, the deal for the purchase of the company has not been closed and even if it should be it is understood that the present management would remain in charge probably for another year.

Purchase has been made by C. H. Mead and associates of the plants, property and assets of the Lick Fork Coal Co., operating near Thurmond. The purchasers thus have available for development about 2,000 acres of coal in the Sewell seam. Production will be increased by numerous improvements and the addition of new equipment. The plant acquired ranks as one of the oldest established in the New River field. It was at one time operated as the Thurmond Mountain Coal Co.

J. Ennis McQuail of New York has taken over the Alpha Pocahontas Coal Co., an operation at Alpoca, Wyoming county, on the Virginian Ry. The purchase price was $750,000. This company's mines have had an average production of 1,000 tons per day. Included in the deal were 1,500 acres of coal land. In the last few months, Mr. McQuail and his associates purchased the Fire Creek Smokeless Coal Co. and the Laurel Coal Co., the plants of which are on the Virginian Ry., also the American Coal Co. and the Algonquin Coal Co., with mines on the Norfolk & Western Ry.

Fairmont—Work at the new plant of the Chesapeake Coal Co. at Barrackville in the Marion County field has progressed to a point where electrical machinery is being installed. The company is putting in a substation and in connection therewith is installing three transformers and a motor-generating

Morgantown — Sale of 285 acres of coal land by Albert G. Titus to John H. Moffit of Charleroi, Pa., believed to represent the Lilly Coal & Coke Co. for the sum of $500,000, ranks as one of the largest sales ever made by an original owner of coal lands in Greene County, Pa., according to word received here.

Huntington — Huntington business men are behind a new coal-selling agency just organized and to be known as the American Export & Inland Coal Corporation, which has a total capitalization of $100,000. General offices of the company will be in Huntington. Chiefly interested in the new concern are: L. W. Blankenship, S. S. McNeer, Harry S. Irons, R. T. Neel and E. C. Wilson, all of Huntington.

Charleston—That owners of the timbered surface of lands the coal rights of which have been sold to coal companies or others cannot remove the timber which might be considered as a necessary adjunct to the mineral development was in effect the decision of Judge Prichard of the U. S. Circuit Court of Appeals rendered in connection with the issuance of an injunction asked for by the United Thacker Coal Co. against L. D. Varney and others. That the timber on coal lands was needed in connection with the development of the coal land was the contention of the United Thacker Co.

BRITISH COLUMBIA

Victoria—Twelve hundred acres of coal lands comprising the properties of the Cedar Mountain Coal Co. and the Indian Mine, near Renton, have been purchased by the Pacific Coast Coal Co. of Seattle.

Some litigation has developed, involving title to some 237 acres of coal bearing land on Vancouver Island, now held by the Granby Consolidated Mining & Smelting Co., Ltd., and being a part of the area now exploited by what is known as the Cassidy Collieries. The result of the first hearing was a judgment for the plaintiffs, the Esquimalt & Nanaimo Ry. Co. The defendants immediately applied for a stay of execution, which was granted.

Traffic News

Utah Public Utilities Commission has refused to grant an increase of 25 per cent in freight rates on coal and ore moving wholly within the state, in accordance with the changes permitted by the Interstate Commerce Commission. The Utah commission holds that, provided the state rates are reasonable and proper in themselves, the amended act gives the interstate body no authority to order them changed. The present freight rates in this state consume 20@25 per cent of the amount obtained for coal from the householders of Salt Lake City

Panama Canal Freights. Westbound steamer rates between the Atlantic and the Pacific via the Panama Canal were advanced Sept. 5, Williams, Dimond & Co., operators of the European Pacific Line, sailing from Boston and New York, announce. The new rates will be equivalent to 85 per cent of trans-continental rates in effect prior to the advance of Aug. 26.

I. C. C. Decision 10197. Case of seven coal operators in Pennsylvania and West Virginia in Avella district vs. Pittsburgh & West Virginia Ry. Co. and Director General. Coal car distribution found to have been unduly prejudicial to complainants. Record held open to afford opportunity for proof of amount of damages sustained.

Industrial News

Monongahela, Pa.—The Home Coal Co. announce that on account of confusing names encountered in its registration in the State of West Virginia, it is necessary to change the name of the company. It will hereafter be known as "The P V & K Coal Company."

Pittsburgh, Pa.—The War Memorial Scholarship Committee of the Westinghouse Electric & Manufacturing Co. has announced as the winners of the four scholarships for the coming college year, 1920-21, Alva C. Corrao, small motor drafting department; Henry Gardiner Symonds, son of N. G. Symonds, manager industrial sales division, Chicago office; J. Dale Seabert, transformer engineering department; and Herbert R. Hillman, son of William A. Hillman who has been a machinist in the works of the R. D. Nuttall Co. for 27 years.

These war memorial scholarships were established in 1919 as a means for perpetuating the memory of those employees of the Westinghouse Electric & Manufacturing Co. and its subsidiary companies, who took part in the war. Each scholarship carries with it the annual payment of $500 for a period not to exceed four years. The payment is to be applied toward an engineering education in any technical school or college selected by the successful candidate and approved by the scholarship committee.

New York, N. Y.—The Mesta Machine Co. of Pittsburgh, Pa., has opened an office in the Singer Building, New York, from which point all its foreign business will be handled. All foreign correspondence should be addressed to the company at New York. The New York office will also be the sales office for the New York and eastern states territory. M. M. Moore, the export sales manager, who has just returned from a several months European trip, will be in charge.

Trade Catalogs

Water Softening and Filtering Apparatus. The Permutit Co., New York, N. Y. Bulletin 101. Pp. 30. Illustrated. Discussion of water rectification or conditioning problems. Advertiser.

Hewlett Link Insulator. General Electric Co., Schenectady, N. Y. Bulletin 49400. Pp. 12. Illustrated. Describes perfected insulator for power cable transmission. Advertiser.

Blueprinting. The B. K. Elliott Co., Pittsburgh, Pa. Wall poster. Pp. 1; 21 x 28 in.; illustrated. Descriptive of papers and machines for making prints—brown and blue.

G. E. Insulating Fabrics. The General Electric Co., Schenectady, N. Y. Bulletin 48,715. Pp. 12; 8 x 11 in.; illustrated. A list of standard insulating fabrics with a brief description of each.

Synchronous Condenser. The General Electric Co., Schenectady, N. Y. Bulletin 41,311. Pp. 10; 8 x 10½ in.; illustrated. Covers power-factor correction and control through synchronous condensers.

Prudential Steel Buildings. The Blaw-Knox Co., Pittsburgh, Pa. Catalogue 21; pp. 32; 7½ x 11 in.; illustrated. Covers the Blaw-Knox line of galvanized sheet-steel buildings, made in nearly every commercial size for a variety of uses. Advertiser.

Association Activities

Harlan County Wagon Coal Operators' Association

The Harlan County Wagon Coal Operators' Association, Harlan, Ky., was recently formed, with J. W. Nolan as president and Virgil Eversole, secretary-treasurer. The object of the organization is to fight for a fair division of open top cars, it being held that the order prohibiting other than tipple mines to load open cars is working an injury on the small operator.

Publications Received

Data Book for Engineers. Locomotive Superheater Co., 30 Church St., New York, N. Y. Pp. 79. Pocket size. Contains tables and data for everyday work. Free copies may be obtained on application to the company.

Fuel Briquetting in 1919. Department of the Interior. Geological Survey publication, by F. G. Tryon. Mineral resources of the United States, 1919—part 2. Pp. 33-36. 6 x 9 in.

Casing Troubles and Fishing Methods in Oil Wells. By Thomas Curtin. Department of the Interior, Bureau of Mines. Bulletin 182. Petroleum Technology 57. Illustrated, pp. 48; 6 x 9 in.

Personals

A. C. Silvius, State Forester, Mifflinburg, Pa., has resigned from the state forestry department, to become secretary-treasurer of the Anthracite Protective Association, an organization of coal land owners in Schuylkill County, who desire to protect their timber from forest fires. He will have his headquarters at Pottsville.

Thomas E. Mulhall of the Central Coal and Coke Co., Salt Lake City, has been appointed general sales manager of the company. Mr. Mulhall has been with the concern since May, 1914. The Central Coal and Coke Co. is one of the largest in the inter-mountain country. It maintains a large retail yard in Salt Lake City and its selling territory covers twelve states.

W. Woodward Williams, Vice President of the Reading Iron Company, Reading, Pa., has resigned and will become assistant to the president of the Pittsburgh Gage & Supply Co., Pittsburgh, Pa. It is understood that Mr. Williams has acquired a substantial stock interest in the Pittsburgh Gage & Supply Co., large jobbers of mill, mine and railway supplies.

J. Lawrence Ferrell has severed his connection as superintendent of the Bailey Fuel Co. at Toler, Ky., to become identified with a Pittsburgh concern for whom he will go on the road.

John J. Pollock, a resident of Lorain, O., and former mayor of that city, will be associated with his brother R. A. Pollock and Peter D. Pollock hereafter in connection with their operation near Rivesvilles, W. Va.

The Northern West Virginia Coal Operators' Association has secured the services of **J. O. Caldwell** of Washington, D. C., as chief clerk. Mr. Caldwell, who has been in the office of the National Coal Association at Washington, D. C., succeeds **C. M. Stubbins,** the latter having become associated with the Blair-Parke Coal & Coke Company.

Charles Whiting Baker, for many years editor-in-chief of *Engineering News* and, since 1917, consulting editor of *Engineering News-Record,* announces his resignation and the establishment under his direction of The Engineering Business Exchange, 30 Church St., Room 347, New York City, an agency to bring together those desiring to sell any sound engineering or technical business—manufacturing, constructing, selling, or professional—and those seeking opportunities to purchase.

Obituary

Warren Delano, who was killed at Poughkeepsie recently when a horse he was driving became unmanageable, was well known in the coal trade. He was chairman of the Board of Directors of the Vinton Colliery Co. and the Mill Creek Coal Co.; a director in the following: Atlantic Coast Line Co., Atlantic Coast R.R. Co., Chicago, Indianapolis & Louisville Ry. Co., Louisville & Nashville R.R. and the Union Mining Co. of Allegheny County, Maryland. Mr. Delano was 68 years old. His sister, Mrs. James Roosevelt, is the mother of Franklin D. Roosevelt, the Democratic candidate for the vice-presidency.

John Mallergren, Sr., a well known coal operator in southern Illinois died recently in his home at Petersburg, Ill. He was 72 years of age at the time of his death.

John Smythe Richardson, III, said to be a descendant of a former governor of North Carolina and assistant secretary of the West Virginia Coal Association, died of rabies on a Chesapeake & Ohio train at Thurmond, W. Va., en route from Huntington, to a Baltimore hospital for pasteur treatment. He was recently bitten by a pet bulldog and the wound which had been cauterized, had seemingly healed. Symptoms, which doctors said plainly indicated rabies, developed. His wife, Mrs. Marion Richardson, who has been ill six weeks, is at the point of death and cannot be told of her husband's death. Mr. Richardson was 33 years of age.

Daniel S. Jones, died at his home, 131 Madison Ave., Flushing, Long Island, recently, in his seventy-ninth year. Prior to his retirement ten years ago, he was the head of one of the largest coal companies in the section, with yards at Long Island City and Flushing. He was vice president of the Long Island City Savings Bank and a director of the Corn Exchange Bank.

Richard Theodore Davies, general coal agent of the Lehigh Coal & Navigation Co., died on Sept. 3 in Roslyn, L. I. Mr. Davies was born in Buffalo, Oct. 3, 1850. For more than 40 years he had been connected in various capacities with the "Old Company." He was at the time of his death a vice-president of the New York Chapter of the Sons of the American Revolution and secretary and treasurer of the General Society of Mechanics and Tradesmen of New York City.

Coming Meetings

National Safety Council will hold its 1920 congress on Sept. 27 to Oct. 1, inclusive, at Milwaukee, Wis. General Manager, C. W. Price, Chicago, Ill.

Coal Mining Institute of America will hold its annual meeting Dec. 8, 9 and 10, 1920, in the Chamber of Commerce Auditorium, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

The Sixth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York City, Sept. 20-25. The Fuel Economy Division has been added this year.

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.

The National Association of Purchasing Agents will hold its annual convention at the Congress Hotel, Chicago, Ill., Oct. 11, 12 and 13. Secretary, L. F. Boffey, 25 Beaver St., New York City.

The Canadian Institute of Mining and Metallurgy will hold its second annual Western meeting at Winnipeg on Oct. 25, 26 and 27; the headquarters of the meeting will be at the Hotel Fort Garry. Local secretary, W. W. Berridge, 905 Union Trust Building, Winnipeg, Canada.